Access DB# 94268

# SEARCH REQUEST FORM

**Scientific and Technical Information Center**

Requester's Full Name: Laura Weiner Examiner #: 71724 Date: 5-19-03
Art Unit: 1745 Phone Number 30 8-4396 Serial Number: 09/903750
Mail Box and Bldg/Room Location: RE10 Results Format Preferred (circle): PAPER DISK E-MAIL

**If more than one search is submitted, please prioritize searches in order of need.**

**********

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

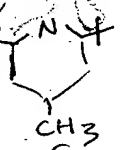
Title of Invention: _____

Inventors (please provide full names): Cover Sheet

Earliest Priority Filing Date: 7/14/2000 - JP

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Could you please search for a non-aqueous solution comprising: organic solvent, lithium salt & a pyridine compound (Formula I).



I) Please search for the elected species of 38222-83-2 → 46.166/RID.
[2,6-di-tert-butyl-4-methylpyridine.]
(Please label)

II) Search for any other hits (the defender claims)

* Please send back copy of claims */

Thanks, Laura

**********

**STAFF USE ONLY**

| | Type of Search | | Vendors and cost where applicable | |
|---|---|---|---|---|
| Searcher: John Calve | NA Sequence (#) | | STN | $ 422.60 |
| Searcher Phone #: | AA Sequence (#) | | Dialog | |
| Searcher Location: | Structure (#) | | Questel/Orbit | |
| Date Searcher Picked Up: 5/21/03 | Bibliographic | | Dr.Link | |
| Date Completed: 5/21/03 | Litigation | | Lexis/Nexis | |
| Searcher Prep & Review Time: 2404 | Fulltext | | Sequence Systems | |
| Clerical Prep Time: | Patent Family | | WWW/Internet | |
| Online Time: 60 | Other | | Other (specify) | |

PTO-1590 (8-01)

=> d his nofile

FILE 'HCA' ENTERED AT 09:05:30 ON 22 MAY 2003
E US20020025477/PN ← author's record
L1 1 SEA ABB=ON PLU=ON US2002025477/PN
SEL L1 RN

FILE 'REGISTRY' ENTERED AT 09:05:51 ON 22 MAY 2003 ← registry #'s for cmpds
L2 83 SEA ABB=ON PLU=ON (100-70-9/BI OR 102253-71-4/BI OR 105-58-8/BI OR 1122-62-9/BI OR 1122-81-2/BI OR 1129-69-7/BI OR 114-91-0/BI OR 133782-19-1/BI OR 145896-59-9/BI OR 153327-00-5/BI OR 162684-16-4/BI OR 1628-89-3/BI OR 1658-42-0/BI OR 17452-27-6/BI OR 187156-09-8/BI OR 191538-04-2/BI OR 20336-15-6/BI OR 204450-96-4/BI OR 2057-49-0/BI OR 208394-04-1/BI OR 21298-55-5/BI OR 21324-40-3/BI OR 214536-41-1/BI OR 2294-76-0/BI OR 2456-81-7/BI OR 24937-79-9/BI OR 2524-52-9/BI OR 2530-26-9/BI OR 2739-97-1/BI OR 2767-90-0/BI OR 2961-47-9/BI OR 2961-49-1/BI OR 35182-51-5/BI OR 372-48-5/BI OR 3796-23-4/BI OR 38222-83-2/BI OR 38222-90-1/BI OR 387367-45-5/BI OR 387367-57-9/BI OR 387367-60-4/BI OR 39457-42-6/BI OR 3978-81-2/BI OR 3980-49-2/BI OR 40055-37-6/BI OR 40089-91-6/BI OR 4673-31-8/BI OR 4783-68-0/BI OR 4810-79-1/BI OR 4810-86-0/BI OR 487-19-4/BI OR 5051-98-9/BI OR 50966-74-0/BI OR 52627-24-4/BI OR 53027-29-5/BI OR 5335-75-1/BI OR 539-32-2/BI OR 5402-34-6/BI OR 5683-33-0/BI OR 580-35-8/BI OR 585-48-8/BI OR 5944-41-2/BI OR 61179-01-9/BI OR 622-39-9/BI OR 64001-70-3/BI OR 644-98-4/BI OR 67580-61-4/BI OR 6831-86-3/BI OR 696-30-0/BI OR 6972-69-6/BI OR 700-16-3/BI OR 702-16-9/BI OR 70380-75-5/BI OR 7295-76-3/BI OR 7399-50-0/BI OR 80401-50-9/BI OR 80866-95-1/BI OR 82993-35-9/BI OR 83978-69-2/BI OR 87451-35-2/BI OR 9002-84-0/BI OR 91-02-1/BI OR 96-49-1/BI OR 97691-20-8/BI)
L3 64 SEA ABB=ON PLU=ON L2 AND PYRIDINE? ← Chemical Abstracts indexed 64 pyridine cmpds.
L4 13 SEA ABB=ON PLU=ON L2 AND TIS/CI
L5 6 SEA ABB=ON PLU=ON L2 NOT (L3 OR L4)

FILE 'HCA' ENTERED AT 09:06:55 ON 22 MAY 2003
D SCAN L1

FILE 'REGISTRY' ENTERED AT 09:13:41 ON 22 MAY 2003
D SCAN L5
D SCAN L4
E 2,6-DITERT-BUTYL-4-METHYLPYRIDINE/CN
E 38222-83-2/RN
L6 1 SEA ABB=ON PLU=ON 38222-83-2/RN ← election species
D SCAN
D L6 FIDE
L7 1618188 SEA ABB=ON PLU=ON 46.156/RID →  Ring identifier for pyridine
L8 303065 SEA ABB=ON PLU=ON L7 AND 2/NC
L9 293355 SEA ABB=ON PLU=ON L8 AND 1-40/C
L10 286393 SEA ABB=ON PLU=ON L9 NOT PMS/CI
L11 196 SEA ABB=ON PLU=ON (LI(L)X)/ELS(L)2/ELC.SUB
L12 3450 SEA ABB=ON PLU=ON (LI(L)X(L)(AS OR P OR B OR S OR N))/ELS(L)3-6/ELC.SUB

Li salt.

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     FILE 'HCA' ENTERED AT 09:30:13 ON 22 MAY 2003
L13          220 SEA ABB=ON  PLU=ON  L6
L14         6757 SEA ABB=ON  PLU=ON  L3
L15       122939 SEA ABB=ON  PLU=ON  L10
L16        43035 SEA ABB=ON  PLU=ON  L11
L17         9166 SEA ABB=ON  PLU=ON  L12

     FILE 'LCA' ENTERED AT 09:32:46 ON 22 MAY 2003
L18          350 SEA ABB=ON  PLU=ON  ORGANIC##(2A)SOLV?
L19         3012 SEA ABB=ON  PLU=ON  DIMETHYLCARBONATE# OR ALKYL(2A)(CARBONATE#)
                 OR (ETHYL# OR METHYL# OR PROPYL# OR BUTYL# OR VINYLENE#)(2A)CA
                 RBONATE# OR ?PENTANONE? OR ?FURAN? OR ?ETHER? OR ?SULFONANE?
L20          215 SEA ABB=ON  PLU=ON  (LITHIUM OR LI)(2A)(FLUORID? OR CHLORID?
                 OR BROMID?) OR LICL OR LIBR OR LICLO4 OR LIASF6 OR LIPF6 OR
                 LIBF4
L21           35 SEA ABB=ON  PLU=ON  (LITHIUM OR LI)(2A)SALT?
L22            0 SEA ABB=ON  PLU=ON  2,6(W)DITERT(W)BUTYL(W)4(W)METHYLPYRIDINE?


     FILE 'HCA' ENTERED AT 09:42:58 ON 22 MAY 2003
L23       128112 SEA ABB=ON  PLU=ON  ORGANIC##(2A)SOLV?
L24      1325971 SEA ABB=ON  PLU=ON  DIMETHYLCARBONATE# OR ALKYL(2A)(CARBONATE#)
                 OR (ETHYL# OR METHYL# OR PROPYL# OR BUTYL# OR VINYLENE#)(2A)CA
                 RBONATE# OR ?PENTANONE? OR ?FURAN? OR ?ETHER? OR ?SULFONANE?
L25        71987 SEA ABB=ON  PLU=ON  (LITHIUM OR LI)(2A)(FLUORID? OR CHLORID?
                 OR BROMID?) OR LICL OR LIBR OR LICLO4 OR LIASF6 OR LIPF6 OR
                 LIBF4
L26        14467 SEA ABB=ON  PLU=ON  (LITHIUM OR LI)(2A)SALT?
L27            1 SEA ABB=ON  PLU=ON  2,6(W)DITERT(W)BUTYL(W)4(W)METHYLPYRIDINE?

                 D SCAN
L28            6 SEA ABB=ON  PLU=ON  L13 AND (L16 OR L17 OR L20 OR L21)
L29            4 SEA ABB=ON  PLU=ON  L28 AND (L18 OR L19)
L30            6 SEA ABB=ON  PLU=ON  L28 OR L29
L31         2207 SEA ABB=ON  PLU=ON  ITAGAKI ?/AU
L32          969 SEA ABB=ON  PLU=ON  KIYOHARA ?/AU
L33            0 SEA ABB=ON  PLU=ON  L31 AND L32
L34            5 SEA ABB=ON  PLU=ON  L30 NOT L1
L35            0 SEA ABB=ON  PLU=ON  L34 AND (L31 OR L32)
L36        94987 SEA ABB=ON  PLU=ON  L16 OR L17 OR L20 OR L21
L37           83 SEA ABB=ON  PLU=ON  L14 AND L36
L38           23 SEA ABB=ON  PLU=ON  L37 AND L19
L39            0 SEA ABB=ON  PLU=ON  L38 AND L18
L40           27 SEA ABB=ON  PLU=ON  L37 AND 2001-2003/PY
L41           15 SEA ABB=ON  PLU=ON  L38 AND 2001-2003/PY
L42            8 SEA ABB=ON  PLU=ON  L38 NOT L41
L43      1196087 SEA ABB=ON  PLU=ON  DIMETHYLCARBONATE? OR ALKYL(2A)(CARBONATE?)
                 OR (ETHYL? OR METHYL? OR PROPYL? OR BUTYL? OR VINYLENE?)(2A)CA
                 RBONATE? OR ?PENTANONE OR ?FURAN OR ?ETHER OR ?SULFONANE
L44            7 SEA ABB=ON  PLU=ON  L42 AND L43
                 D SCAN
L45       990454 SEA ABB=ON  PLU=ON  (COMP# OR COMPOSIT? OR DISPERS? OR
                 SUSPENS? OR MIXTURE? OR BLEND? OR ADMIX? OR COMMIX? OR COMMIX?
                 OR INTERMIX? OR COMPSN# OR COMPN# OR FORMULAT? OR INTERSPER?)/T
                 I
L46           56 SEA ABB=ON  PLU=ON  L37 NOT L40
L47            0 SEA ABB=ON  PLU=ON  L46 AND L45
L48            0 SEA ABB=ON  PLU=ON  L37 AND L45
L49               QUE ABB=ON  PLU=ON  (COMP# OR COMPOSIT? OR MIXTURE? OR
                 INTERMIX? OR COMPSN# OR COMPN#)
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listed in PGPUB

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L50          21 SEA ABB=ON  PLU=ON  L37 AND L49
L51           8 SEA ABB=ON  PLU=ON  L50 AND 2001-2003/PY
L52          13 SEA ABB=ON  PLU=ON  L50 NOT L51
L53           2 SEA ABB=ON  PLU=ON  L42 AND L49
L54           8 SEA ABB=ON  PLU=ON  L42 OR L44 OR L53
L55        1003 SEA ABB=ON  PLU=ON  L15 AND L36
L56         229 SEA ABB=ON  PLU=ON  L55 AND (L18 OR L19)
L57          13 SEA ABB=ON  PLU=ON  L56 AND L45
L58           7 SEA ABB=ON  PLU=ON  L57 AND 2001-2003/PY
L59           6 SEA ABB=ON  PLU=ON  L57 NOT L58
                D SCAN
L60      180856 SEA ABB=ON  PLU=ON  BATTERY? OR BATTERIES? OR (ELECTROCHEM? OR
                ELECTRO(W)CHEM? OR GALVAN? OR ELECTROLY? OR SECONDAR? OR
                PRIMAR?)(2A)CELL?
L61           3 SEA ABB=ON  PLU=ON  (L30 OR L54 OR L52 OR L59) AND L60
                D SCAN
L62      227209 SEA ABB=ON  PLU=ON  52/SX,SC
L63            QUE ABB=ON  PLU=ON  SOLUTION?
L64          30 SEA ABB=ON  PLU=ON  (L30 OR L54 OR L52 OR L59)
L65          12 SEA ABB=ON  PLU=ON  L63 AND L64

     FILE 'LCA' ENTERED AT 10:05:18 ON 22 MAY 2003
                D COST

     FILE 'HCA' ENTERED AT 10:06:11 ON 22 MAY 2003
L66          73 SEA ABB=ON  PLU=ON  L55 AND L62
L67          25 SEA ABB=ON  PLU=ON  L66 AND 2001-2003/PY
                D SCAN L64

     FILE 'LCA' ENTERED AT 10:09:00 ON 22 MAY 2003

     FILE 'HCA' ENTERED AT 10:11:45 ON 22 MAY 2003
L68          48 SEA ABB=ON  PLU=ON  L66 NOT L67
L69           0 SEA ABB=ON  PLU=ON  L68 AND (L13 OR L14)
L70      289689 SEA ABB=ON  PLU=ON  72/SX,SC
L71          97 SEA ABB=ON  PLU=ON  L55 AND L70
L72          16 SEA ABB=ON  PLU=ON  L71 AND 2001-2003/PY
L73          81 SEA ABB=ON  PLU=ON  L71 NOT L72
L74           1 SEA ABB=ON  PLU=ON  L73 AND (L13 OR L14)
L75           2 SEA ABB=ON  PLU=ON  L73 AND L45
L76          26 SEA ABB=ON  PLU=ON  L68 AND L49
L77           7 SEA ABB=ON  PLU=ON  L54 NOT L30
L78          17 SEA ABB=ON  PLU=ON  (L52 OR L59) NOT (L77 OR L30)
L79          27 SEA ABB=ON  PLU=ON  (L76 OR L75) NOT (L30 OR L77 OR L52 OR
                L59)

=> d L30 1 cbib abs hitind hitstr

L30  ANSWER 1 OF 6  HCA  COPYRIGHT 2003 ACS
138:271535  Process for producing 2,2-bis(fluoromethyl)-6-(perfluoroalkyl)-2H-1-
     benzopyran-4-carboxylic acids.  Komata, Takeo; Fujiwara, Masaki; Tarui,
     Takanao; Saito, Yusuke; Minesaki, Hiroshi (Central Glass Company, Limited,
     Japan).  Eur. Pat. Appl. EP 1298129 A2 20030402, 27 pp.  DESIGNATED
     STATES: R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
     PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK.  (English).
     CODEN: EPXXDW.  APPLICATION: EP 2002-21753 20020925.  PRIORITY: JP
     2001-300314 20010928; JP 2001-332471 20011030.
GI
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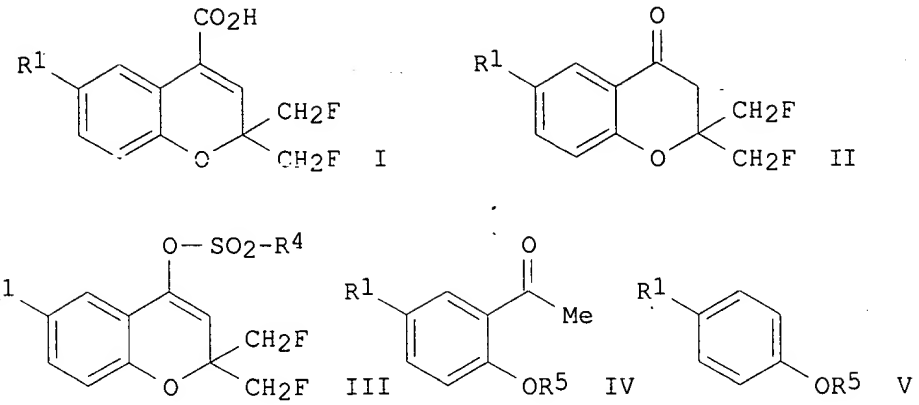
Laura,
Since they filed have a JP 2000 appl., I eliminated records w/ publ. date 2001-2003



AB The present invention relates to a first process for producing the title compd. [I; R1 = perfluoroalkyl of formula CnF2n+1; wherein n = an integer of 1-10] which is useful as an intermediate for medicines and agricultural chems. The first process includes the steps of (a) reacting a 2,2-bis(fluoromethyl)-6-(perfluoroalkyl)-2H-1-benzopyran-4-one (II; R1 = same as above) with a perfluoroalkanesulfonic acid anhydride in the presence of a base, thereby obtaining a perfluoroalkanesulfonic 2,2-bis(fluoromethyl)-6-(perfluoroalkyl)-2H-1-benzopyran-4-yl ester (III; R1 = same as above; R4 = lower perfluoroalkyl of formula CnF2n+1; wherein n = an integer of 1-10); and (b) reacting the perfluoroalkanesulfonic acid benzopyranyl ester III with carbon monoxide in the presence of a palladium complex compd. and a base, thereby obtaining the carboxylic acid I. The present invention further relates to a second process for producing a 2-hydroxy-5-(perfluoroalkyl)acetophenone (IV; R1 = same as above; R5 = H), which can be a raw material for producing the carboxylic acid. The second process includes the steps of (c) reacting a 4-(perfluoroalkyl)alkoxybenzene [V; R1 = same as above; R5 = (non)straight-chain C1-20 alkyl] with acetic anhydride or an acyl halide in the presence of a Lewis acid, thereby obtaining a 2-alkoxy-5-(perfluoroalkyl)acetophenone IV [R1 = same as above; R5 = (non)straight-chain C1-20 alkyl]; and (d) dealkylating the 2-alkoxy-5-(perfluoroalkyl)acetophenone by a dealkylating agent. Thus, a three-necked 50-mL flask (equipped with a thermometer, a reflux condenser, and a dropping funnel) was charged with 2.2 g 5-trifluoromethyl-2-hydroxyacetophenone, 2.2 g 1,3-difluoroacetone, and 40 mL MeOH, followed by adding dropwise 2.0 g pyrrolidine over 5 min at 30-34.degree. with stirring of the mixt., and the mixt. was heated under reflux for 6 h to give, after workup and silica gel chromatog., 36% 2,2-bis(fluoromethyl)-3,4-dihydro-6-(trifluoromethyl)-2H-1-benzopyran-4-one (VI). A three-necked 50-mL flask (equipped with a thermometer and a dropping funnel) was charged with 1.0g VI, 1.8 g 2,6-di(tert-butyl)-4-methylpyridine, and 10 mL CH2Cl2, followed by adding dropwise 2.0 g trifluoromethanesulfonic acid anhydride over 5 min under cooling in an iced water bath at 5-10.degree. with stirring, the mixt. was gradually warmed to room temp. and stirred for 140 h at room temp., after workup and silica gel chromatog., 75% trifluoromethanesulfonic acid 2,2-bis(fluoromethyl)-6-(trifluoromethyl)-2H-1-benzopyran-4-yl ester (VII). A three-necked 50-mL flask (equipped with a reflux condenser, a thermometer, and a CO introducing pipe connected with a balloon charged with carbon monoxide) was charged with 2.00 g VII, 1.90 g potassium acetate, 206 mg **lithium chloride**, and 25 mL DMF , followed by adding 50 mg tris(dibenzylidene)(chloroform)dipalladium [Pd2(dba)3(CHCl3)] with stirring, and the carbonylation was conducted at

25.degree. for 2 h under normal pressure of carbon monoxide atm. to give, after workup, 87.0% 2,2-bis(fluoromethyl)-6-(trifluoromethyl)-2H-1-benzopyran-4-carboxylic acid.

IC ICM C07D311-58
ICS C07C049-84; C07C045-68

CC 27-14 (Heterocyclic Compounds (One Hetero Atom))

IT 603-35-0, Triphenylphosphine, uses 3375-31-3 **7447-41-8**, **Lithium chloride**, uses 7681-11-0, Potassium iodide, uses 32005-36-0, Bis(dibenzylideneacetone)palladium 52522-40-4, Tris(dibenzylideneacetone)dipalladium-chloroform (1:1)
RL: CAT (Catalyst use); USES (Uses)
(prepn. of bis(fluoromethyl)(perfluoroalkyl)benzopyrancarboxylic acid by sulfonylation of benzopyranone deriv. with perfluoroalkanesulfonic acid anhydride and palladium-catalyzed carbonylation of benzopyranyl perfluoroalkanesulfonate)

IT 75-77-4, Trimethylsilyl chloride, reactions 1122-58-3, 4-Dimethylaminopyridine 1493-13-6, Trifluoromethanesulfonic acid 7681-82-5, Sodium iodide, reactions 10294-33-4, Boron tribromide **38222-83-2**, 2,6-Di-tert-butyl-4-methylpyridine
RL: RGT (Reagent); RACT (Reactant or reagent)
(prepn. of bis(fluoromethyl)(perfluoroalkyl)benzopyrancarboxylic acid by sulfonylation of benzopyranone deriv. with perfluoroalkanesulfonic acid anhydride and palladium-catalyzed carbonylation of benzopyranyl perfluoroalkanesulfonate)

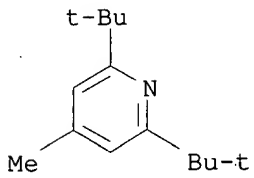
IT **7447-41-8**, **Lithium chloride**, uses
RL: CAT (Catalyst use); USES (Uses)
(prepn. of bis(fluoromethyl)(perfluoroalkyl)benzopyrancarboxylic acid by sulfonylation of benzopyranone deriv. with perfluoroalkanesulfonic acid anhydride and palladium-catalyzed carbonylation of benzopyranyl perfluoroalkanesulfonate)

RN 7447-41-8 HCA
CN Lithium chloride (LiCl) (9CI) (CA INDEX NAME)

Cl—Li

IT **38222-83-2**, 2,6-Di-tert-butyl-4-methylpyridine
RL: RGT (Reagent); RACT (Reactant or reagent)
(prepn. of bis(fluoromethyl)(perfluoroalkyl)benzopyrancarboxylic acid by sulfonylation of benzopyranone deriv. with perfluoroalkanesulfonic acid anhydride and palladium-catalyzed carbonylation of benzopyranyl perfluoroalkanesulfonate)

RN 38222-83-2 HCA
CN Pyridine, 2,6-bis(1,1-dimethylethyl)-4-methyl- (9CI) (CA INDEX NAME)




=> d L30 2-6 cbib abs hitind hitstr

L30 ANSWER 2 OF 6 HCA COPYRIGHT 2003 ACS
138:124987 Nonaqueous electrolyte solution and secondary battery using the solution. Takehara, Masahiro; Fujii, Takashi; Kotato, Minoru; Noda,

Daisuke; Kinoshita, Shinichi; Ue, Makoto; Suzuki, Hitoshi (Mitsubishi Chemical Corporation, Japan). PCT Int. Appl. WO 2003007416 A1 20030123, 61 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2002-JP6906 20020708. PRIORITY: JP 2001-208992 20010710; JP 2001-214638 20010716.

AB The electrolyte soln. has a **Li salt** dissolved in a lactone based nonaq. solvent mixt., where the soln. contains .ltoreq.1 mmol hydroxy carboxylic acid/kg. The electrolyte soln. may also contain a N heterocyclic compd. The battery is a secondary Li battery.

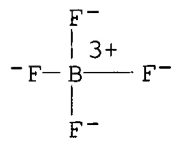
IC ICM H01M010-40
ICS H01M004-02; H01M004-58; H01M004-48

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 80-73-9, 1,3-Dimethyl-2-imidazolidinone 88-12-0, uses 91-22-5, Quinoline, uses 96-48-0, .gamma.-Butyrolactone 96-49-1, Ethylene carbonate 96-54-8, 1-Methylpyrrole 109-06-8, .alpha.-Picoline 110-86-1, Pyridine, uses 289-80-5, Pyridazine 289-96-3, 1,2,3-Triazine 623-53-0, **Ethyl methyl carbonate** 872-36-6, **Vinylene carbonate** 872-50-4, 1-Methylpyrrolidone, uses 3741-38-6, Ethylene sulfite 4427-92-3, Phenyl ethylene carbonate **14283-07-9**, Lithium fluoroborate 19836-78-3 **21324-40-3**, Lithium hexafluorophosphate **38222-83-2**, 2,6-Di-tert-butyl-4-methylpyridine
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolyte solns. with low hydroxy carboxylic acid contents for secondary lithium batteries)

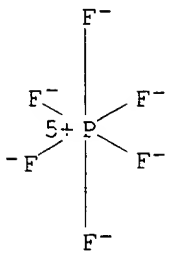
IT **14283-07-9**, Lithium fluoroborate **21324-40-3**, Lithium hexafluorophosphate **38222-83-2**, 2,6-Di-tert-butyl-4-methylpyridine
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolyte solns. with low hydroxy carboxylic acid contents for secondary lithium batteries)

RN 14283-07-9 HCA
CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



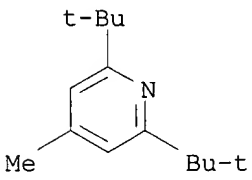
● $Li^+$

RN 21324-40-3 HCA
CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)





RN 38222-83-2 HCA
CN Pyridine, 2,6-bis(1,1-dimethylethyl)-4-methyl- (9CI) (CA INDEX NAME)



L30 ANSWER 3 OF 6 HCA COPYRIGHT 2003 ACS
138:26910 Secondary nonaqueous electrolyte battery and the nonaqueous electrolyte solution. Takehara, Masahiro; Fujii, Takashi; Kinoshita, Shinichi; Ue, Makoto (Mitsubishi Chemical Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2002359002 A2 20021213, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-162306 20010530.

AB The battery is a Li battery, and the electrolyte soln. uses a lactone based nonaq. solvent mixt. contg. 0.1-10% arom. N-contg. heterocyclic compd.

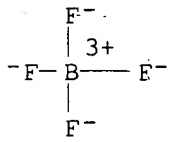
IC ICM H01M010-40
ICS H01M004-02; H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

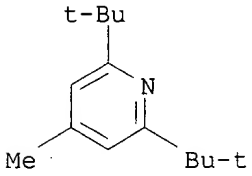
IT 91-22-5, Quinoline, uses 96-48-0, .gamma.-Butyrolactone 96-54-8, 1-Methylpyrrole 109-06-8, .alpha.-Picoline 289-80-5, Pyridazine 289-96-3, 1,2,3-Triazine 872-36-6, **Vinylene carbonate** **14283-07-9**, Lithium fluoroborate **38222-83-2**, 2,6-Di-tert-butyl-4-methylpyridine
RL: DEV (Device component use); USES (Uses)
(nonaq. solvent mixts. contg. arom. nitrogen heterocyclic compds. for secondary lithium battery electrolyte solns.)

IT **14283-07-9**, Lithium fluoroborate **38222-83-2**, 2,6-Di-tert-butyl-4-methylpyridine
RL: DEV (Device component use); USES (Uses)
(nonaq. solvent mixts. contg. arom. nitrogen heterocyclic compds. for secondary lithium battery electrolyte solns.)

RN 14283-07-9 HCA
CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



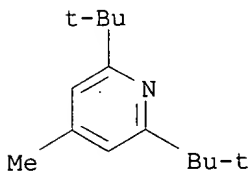
RN 38222-83-2 HCA
CN Pyridine, 2,6-bis(1,1-dimethylethyl)-4-methyl- (9CI) (CA INDEX NAME)



L30 ANSWER 4 OF 6 HCA COPYRIGHT 2003 ACS
137:169275 GaCl3-Catalyzed Ortho-Ethynylation of Phenols. Kobayashi, Katsumi; Arisawa, Mieko; Yamaguchi, Masahiko (Department of Organic Chemistry Graduate School of Pharmaceutical Sciences, Tohoku University, Sendai, 980-8578, Japan). Journal of the American Chemical Society, 124(29), 8528-8529 (English) 2002. CODEN: JACSAT. ISSN: 0002-7863. OTHER SOURCES: CASREACT 137:169275. Publisher: American Chemical Society.

AB Phenols are ethynylated at the ortho position with silylated chloroethyne in the presence of a catalytic amt. of GaCl3 and lithium phenoxide. The **lithium salt** is essential for the catalysis, and addn. of 2,6-di-tert-butyl-4-methylpyridine inhibits desilylation and hydration of the products. The reaction can be applied to various substituted phenols giving the ortho-ethynylated products in high yields, and the turnover nos. based on GaCl3 are between 8 and 10. The reaction mechanism involves addn. of in situ formed phenoxygallium to the haloethyne, followed by elimination of GaCl3.

CC 25-10 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
IT 109-72-8, Butyllithium, uses 13450-90-3, Gallium chloride
**38222-83-2**, 2,6-Di-tert-butyl-4-methylpyridine
RL: CAT (Catalyst use); USES (Uses)
(ortho-ethynylation of phenols)
IT **38222-83-2**, 2,6-Di-tert-butyl-4-methylpyridine
RL: CAT (Catalyst use); USES (Uses)
(ortho-ethynylation of phenols)
RN 38222-83-2 HCA
CN Pyridine, 2,6-bis(1,1-dimethylethyl)-4-methyl- (9CI) (CA INDEX NAME)



L30 ANSWER 5 OF 6 HCA COPYRIGHT 2003 ACS
136:88439 Nonaqueous electrolytic solution for secondary battery. Hiroaki, Itagaki; Chikara, Kiyohara (Mitsubishi Chemical Corporation, Japan). Eur. Pat. Appl. EP 1172878 A2 20020116, 16 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2001-116675 20010716. PRIORITY: JP 2000-213624 20000714.

AB A nonaq. electrolytic soln. (contg. at least an **org. solvent** and a **lithium salt** further contg. a particular pyridine compd.) is capable of depressing deterioration of battery properties in a high temp. environment. A secondary battery is also provided.

IC ICM H01M010-40

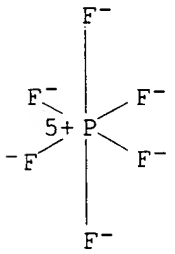
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate **21324-40-3**, Lithium hexafluorophosphate 39457-42-6, Lithium manganese oxide 52627-24-4, Cobalt lithium oxide 53027-29-5, Iron Lithium manganese oxide 61179-01-9, Aluminum Lithium manganese oxide 133782-19-1, Lithium manganese vanadium oxide 145896-59-9, Aluminum lithium manganese oxide Al0.1LiMn1.9O4 153327-00-5, Gallium Lithium manganese oxide 162684-16-4, Lithium manganese nickel oxide 187156-09-8, Lithium manganese zinc oxide 191538-04-2, Copper Lithium manganese oxide 204450-96-4, Chromium Lithium manganese oxide 208394-04-1, Lithium manganese titanium oxide 214536-41-1, Cobalt Lithium manganese oxide
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolytic soln. for secondary battery)

IT 91-02-1, 2-Benzoylpyridine 100-70-9, 2-Cyanopyridine 114-91-0 372-48-5, 2-Fluoropyridine 487-19-4, 3-(1-Methylpyrrol-2-yl)pyridine 539-32-2, 3-Butylpyridine 580-35-8, 2,4,6-Triphenylpyridine 585-48-8, 2,6-Ditert-Butylpyridine 622-39-9, 2-Propylpyridine 644-98-4, 2-IsoPropylpyridine 696-30-0, 4-IsoPropylpyridine 700-16-3, Pentafluoropyridine 702-16-9, 2-Methyl-5-butylpyridine 1122-62-9, 2-Acetylpyridine 1122-81-2, 4-Propylpyridine 1129-69-7, 2-Hexylpyridine 1628-89-3, 2-Methoxypyridine 1658-42-0, Methyl 2-Pyridylacetate 2057-49-0, 4-(3-Phenylpropyl)pyridine 2294-76-0, 2-Pentylpyridine 2456-81-7, 4-(1-Pyrrolidinyl)pyridine 2524-52-9, 2-Pyridine carboxylic acid, ethyl ester 2530-26-9, 3-Nitropyridine 2739-97-1, 2-(Cyanomethyl)pyridine 2767-90-0, 4-Piperidinopyridine 2961-47-9, 4-(5-Nonyl)pyridine 2961-49-1 3796-23-4, 3-Trifluoromethylpyridine 3978-81-2, 4-tert-Butylpyridine 3980-49-2 4673-31-8, 3-Propylpyridine 4783-68-0, 2-Phenoxypyridine 4810-79-1, 4-IsoButylpyridine 4810-86-0 5051-98-9 5335-75-1, 4-Butylpyridine 5402-34-6 5683-33-0, 2-Dimethylaminopyridine 5944-41-2, 2-tert-Butylpyridine 6831-86-3, 2-tert-Butyl-6-methylpyridine 6972-69-6, N,N-Dimethylnicotinamide 7295-76-3, 3-Methoxypyridine 7399-50-0, 2-(3-Pentyl)pyridine 9002-84-0, Ptfe 17452-27-6, 3-Pyridylisothiocyanate 20336-15-6, 2,4,6-Tritert-Butylpyridine 21298-55-5, 2-(3-Thienyl)pyridine 24937-79-9, Pvdf 35182-51-5, 4-(3-Pentyl)pyridine **38222-83-2**, 2,6-Ditert-Butyl-4-methylpyridine 38222-90-1 40055-37-6 40089-91-6, 4-Octylpyridine 50966-74-0 64001-70-3, 4-(1,3,4)Oxadiazol-2-ylpyridine 67580-61-4, 4-(2-Diethylaminoethyl)pyridine 70380-75-5, 5-(Pyrid-4-yl)oxazole 80401-50-9, 2-Undecylpyridine 80866-95-1, 3-(Pyrrol-1-ylmethyl)pyridine 82993-35-9 83978-69-2 87451-35-2 97691-20-8 102253-71-4, 4-(4-Pyridyl)-1,2,3-thiadiazole 387367-45-5 387367-57-9 387367-60-4
RL: MOA (Modifier or additive use); USES (Uses)
(nonaq. electrolytic soln. for secondary battery)

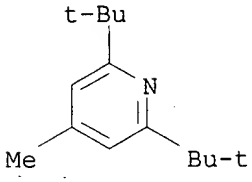
IT **21324-40-3**, Lithium hexafluorophosphate

RL: DEV (Device component use); USES (Uses)
(nonaq. electrolytic soln. for secondary battery)
RN 21324-40-3 HCA
CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)

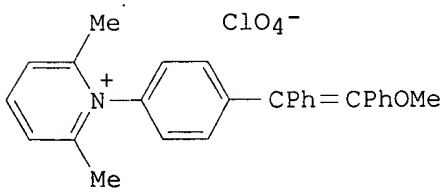


● $Li^+$

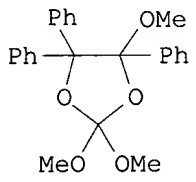
IT **38222-83-2**, 2,6-Ditert-Butyl-4-methylpyridine
RL: MOA (Modifier or additive use); USES (Uses)
(nonaq. electrolytic soln. for secondary battery)
RN 38222-83-2 HCA
CN Pyridine, 2,6-bis(1,1-dimethylethyl)-4-methyl- (9CI) (CA INDEX NAME)



L30 ANSWER 6 OF 6 HCA COPYRIGHT 2003 ACS
111:114793 Unusual anodic behavior of 1-alkyl(aryl)-oxy-1,2,2-triarylethylenes, in the presence of soluble and insoluble bases. Cariou, Michel (Lab. Electrochim. Org., Univ. Cathol. Ouest, Angers, 49005, Fr.). Bulletin de la Societe Chimique de France (6), 1015-21 (French) 1988. CODEN: BSCFAS. ISSN: 0037-8968. OTHER SOURCES: CASREACT 111:114793.
GI



II



III

AB The electrooxidn. of 1-alkyl (aryl) oxy-1,2,2-triarylethylenes, with **LiClO4** as supporting electrolyte, led to unexpected compds. resulting from the reaction of electrogenerated species on the base added in the anodic compartment. Thus, 1-methoxy-1,2,2-triphenylethylene (I), by electrooxidn. in acetonitrile, in the presence of 2,6-lutidine, led

exclusively to N-aryl substituted pyridinium perchlorates (E)- and (Z)-II. On the other hand, the expected methoxy-ketone Ph2C(OMe)COPh was mainly formed if the electrooxidn. was carried out in the presence of either 2,6-di-tert-butyl-4-methylpyridine or K2CO3; the p-methoxylated deriv. reacted similarly. 1-Phenoxy-1,2,2-triphenylethylene led to the same results, whereas a cyclization. reaction could have been expected. In the same way, by electrooxidn. in the presence of 2,6-lutidine, led to an N-vinyl substituted lutidinium perchlorate. In methanol, in the presence of K2CO3, the electrooxidn. of enol **ether** I led to the mixt. of the expected dimethoxylated product Ph2C(OMe)CPh(OMe)2 and dioxolane III; in the presence of 2,6-lutidine, dimethoxylation of the ethylenic double bond is accompanied by partial para-methoxylation of an arom. ring that led to p-MeOC6H4CPh(OMe)CPh(OMe)2. The x-ray crystal structures of (E)-I and III were detd.

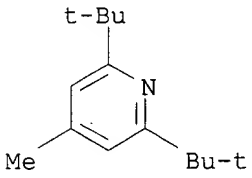
CC 25-9 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
Section cross-reference(s): 28, 75

IT 108-48-5, 2,6-Lutidine 108-75-8, 2,4,6-Collidine **38222-83-2**
RL: RCT (Reactant); RACT (Reactant or reagent)
(electrooxidn. of alkyl- and aryloxytriarylethylenes in presence of)

IT **38222-83-2**
RL: RCT (Reactant); RACT (Reactant or reagent)
(electrooxidn. of alkyl- and aryloxytriarylethylenes in presence of)

RN 38222-83-2 HCA

CN Pyridine, 2,6-bis(1,1-dimethylethyl)-4-methyl- (9CI) (CA INDEX NAME)

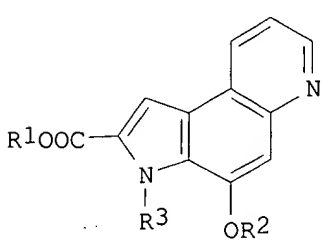



=> d L77 1-7 cbib abs hitind hitstr

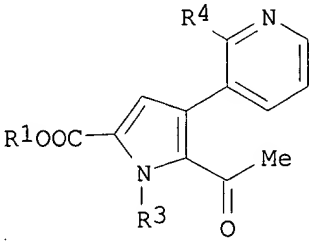
L77 ANSWER 1 OF 7 HCA COPYRIGHT 2003 ACS

128:61380 Preparation of pyrroloquinolines as intermediates for duocarmycin SA. Natsume, Mitsutaka; Muratake, Hideaki (Shionogi and Co., Ltd., Japan; Otsu, Kenkyusho). Jpn. Kokai Tokkyo Koho JP 09301975 A2 19971125 Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-116052 19960510.

GI




I




II

AB Pyrroloquinolines I (R1 = H, lower alkyl; R2 = OH-protecting group; R3 = H, lower alkyl, amino-protecting group) are prepd. by intramol. cyclization of II (R1, R3 = same as above; R4 = halo, F3CSO3) using org.

metal catalysts followed by protection of OH groups of I (R1, R3 = same as above; R2 = H). II (R1 = Me, R3 = H, R4 = F3CSO3) (prepn. given) was **etherified** with F3CSO3SiMe2Bu-t and Et3N in CH2Cl2 at 0.degree. for 1 h, cyclocondensed in the presence of Bu3SnF, (Ph3P)2PdCl2, and **LiCl** in xylene under reflux for 1 h, and protected with ClCO2H in pyridine at 20.degree. for 3 h to give 89% I (R1 = Me, R2 = MeOCO, R3 = H) (III). Me (7bR*,8aS*)-1,2,4,5,8,8a-hexahydro-4-oxocyclopropa[c]pyrrolo[3,2 e]indole-6-carboxylate (prepd. from III via several steps) was treated with 2-(imidazol-1-yl-carbonyl)-5,6,7-trimethoxyindole in the presence of NaH in THF/HCONMe2 at 0.degree. for 4 h to give 60% duocarmycin SA.

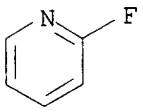
IC ICM C07D471-04
ICS B01J031-12; A61K031-40; C07D487-04

CC 26-6 (Biomolecules and Their Synthetic Analogs)
Section cross-reference(s): 1

IT **372-48-5**, 2-Fluoropyridine 157425-54-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(in prepn. of acetylpyridinylpyrrole; prepn. of pyrroloquinolines by intramol. cyclization of acetylpyridinylpyrrole using org metal catalysts)

IT **372-48-5**, 2-Fluoropyridine
RL: RCT (Reactant); RACT (Reactant or reagent)
(in prepn. of acetylpyridinylpyrrole; prepn. of pyrroloquinolines by intramol. cyclization of acetylpyridinylpyrrole using org metal catalysts)

RN 372-48-5 HCA
CN Pyridine, 2-fluoro- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)




L77 ANSWER 2 OF 7 HCA COPYRIGHT 2003 ACS

126:60411 Noncoordinating anions in carbocationic polymerization. Shaffer, Timothy D.; Ashbaugh, John R. (Baytown Polymers Center, Exxon Chemical Co., Baytown, TX, 77520-5200, USA). Journal of Polymer Science, Part A: Polymer Chemistry, 35(2), 329-344 (English) 1997. CODEN: JPACEC. ISSN: 0887-624X. Publisher: Wiley.

AB The initiation and catalysis of metallocene and nonmetallocene initiator-catalysts that contain the noncoordinating anions (NCA), e.g., B(C6F5)4- and RB(C6F5)3- were studied. The metallocenes used were CpTiMe3, bis(1,2,3,4,5-pentamethylcyclopentadienyl)zirconium di-Me, bis(tetrahydroindenyl)dimethylsilyl zirconium di-Me, and bis(cyclopentadienyl)hafnium di-Me. The monomers were isobutylene, styrene, p-methylstyrene, and iso-Bu vinyl **ether** and the NCAs also include Ph3C+, R3C+, H+, Li+, R3Si+. The NCA does not contribute to termination and can be used in low concns. compared with conventional Lewis acids. These qualities provide for isobutylene polymn. that yield low Mn oligomers or high Mn polymer, dependent upon the initiator and polymn. conditions. Mechanistic aspects of initiation, transfer and termination and the participation of adventitious water are considered for each class of initiator-catalyst. NCAs do not cause the stereospecific carbocationic polymn. of styrene. Under conditions not conducive to carbocationic polymn., NCA/metallocenes mediate the coordination polymn. of styrene.

CC 35-3 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 67

IT 100-39-0, Benzyl bromide 577-19-5, o-Nitrophenyl bromide 1109-15-5, Tris(pentafluorophenyl)boron **2797-28-6**, Lithium tetrakis(pentafluorophenyl)borate 37260-88-1, Bis(cyclopentadienyl)dimethyl hafnium 38386-55-9, Cyclopentadienyl trimethyl titanium 67108-80-9, Bis(pentamethylcyclopentadienyl)dimethylzirconium **70021-18-0 70083-57-7** 89700-88-9 136040-19-2, Triphenylmethyl tetrakis(pentafluorophenyl)borate 148354-27-2 160964-82-9
RL: CAT (Catalyst use); USES (Uses)
(mechanisms of noncoordinating anions and metallocene catalysts in carbocationic polymn. of styrenes)

IT 98-83-9, .alpha.-Methylstyrene, reactions 100-42-5, Styrene, reactions 109-53-5, Isobutyl vinyl **ether** 115-11-7, Isobutylene, reactions 622-97-9, p-Methylstyrene
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(mechanisms of noncoordinating anions and metallocene catalysts in carbocationic polymn. of styrenes)

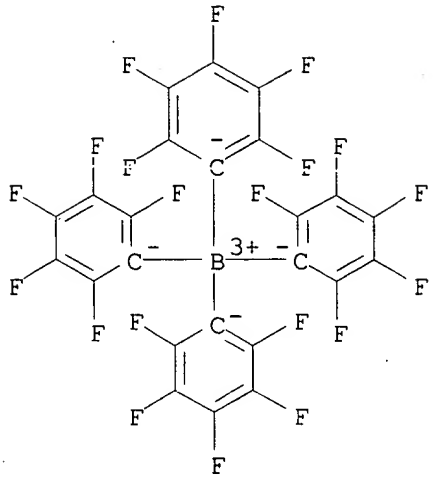
IT 9003-27-4P, Polyisobutylene 9003-44-5P, Poly(isobutyl vinyl **ether**) 9003-53-6P, Polystyrene 24936-41-2P, Poly(p-methylstyrene) 25014-31-7P, Poly(.alpha.-methylstyrene) 28325-75-9P, Syndiotactic polystyrene 61128-14-1P, Isobutylene-p-methylstyrene copolymer
RL: SPN (Synthetic preparation); PREP (Preparation)
(mechanisms of noncoordinating anions and metallocene catalysts in carbocationic polymn. of styrenes)

IT **585-48-8**, 2,6-Di-tert-butylpyridine 6111-88-2, 2-Chloro-2,4,4-trimethylpentane
RL: RCT (Reactant); RACT (Reactant or reagent)
(model reactant; mechanisms of noncoordinating anions and metallocene catalysts in carbocationic polymn. of styrenes)

IT **2797-28-6**, Lithium tetrakis(pentafluorophenyl)borate **70021-18-0 70083-57-7**
RL: CAT (Catalyst use); USES (Uses)
(mechanisms of noncoordinating anions and metallocene catalysts in carbocationic polymn. of styrenes)

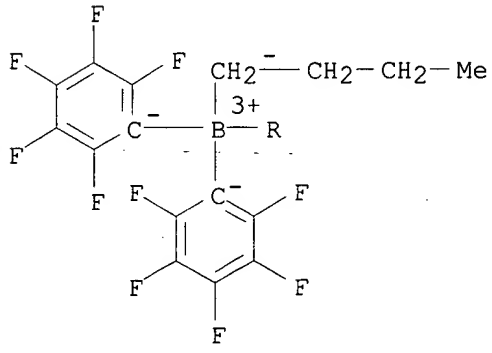
RN 2797-28-6 HCA

CN Borate(1-), tetrakis(pentafluorophenyl)-, lithium (8CI, 9CI) (CA INDEX NAME)

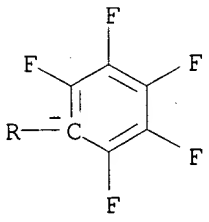


● $Li^+$

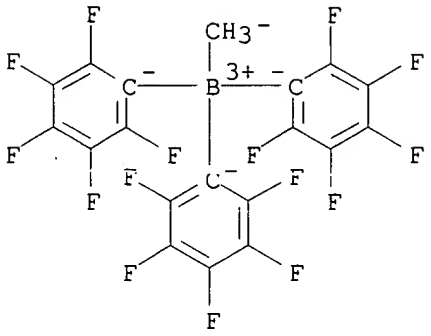
RN 70021-18-0 HCA
CN Borate(1-), butyltris(pentafluorophenyl)-, lithium, (T-4)- (9CI) (CA INDEX NAME)



● $Li^+$

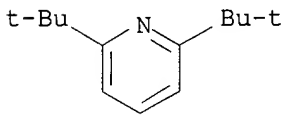


RN 70083-57-7 HCA
CN Borate(1-), methyltris(pentafluorophenyl)-, lithium, (T-4)- (9CI) (CA INDEX NAME)



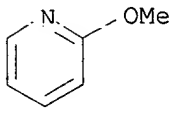
● $Li^+$

IT **585-48-8**, 2,6-Di-tert-butylpyridine
RL: RCT (Reactant); RACT (Reactant or reagent)
(model reactant; mechanisms of noncoordinating anions and metallocene catalysts in carbocationic polymn. of styrenes)
RN 585-48-8 HCA
CN Pyridine, 2,6-bis(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)

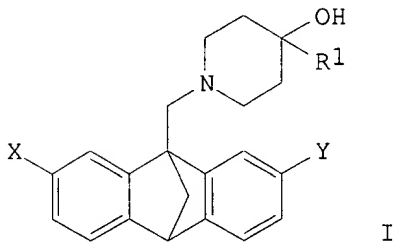


L77 ANSWER 3 OF 7 HCA COPYRIGHT 2003 ACS
123:339642 Aggregative activation and heterocyclic chemistry. III. Unusual regioselective lithiation of 2-alkoxypyridines. Gros, Ph.; Fort, Y.; Queguiner, G.; Caubere, P. (Lab. Chim. Org. I., CNRS, Nancy, F-54506, Fr.). Tetrahedron Letters, 36(27), 4791-4 (English) 1995. CODEN: TELEAY. ISSN: 0040-4039. OTHER SOURCES: CASREACT 123:339642. Publisher: Elsevier.
AB 2-Alkoxypyridines were regioselectively metalated on the C-6 position with [1/1] BuLi/Me2N(CH2)2OLi aggregates. The corresponding 6-lithio derivs., for example (6-methoxy-2-pyridinyl)lithium, were treated with various electrophiles leading to the corresponding 6-substituted 2-alkoxypyridines in very good yields. In contrast, the lithiation of 2-methoxypyridine with LDA gave (2-methoxy-3-pyridinyl)lithium (80% yield). For example, lithiation of 2-methoxypyridine with BuLi/Me2N(CH2)2OLi followed by addn. of N,N-dimethylcarbamoyl chloride gave 1-(6-methoxy-2-pyridinyl)-1-**pentanone** (65% yield).
CC 27-16 (Heterocyclic Compounds (One Hetero Atom))
IT 17200-12-3, Ethanol, 2-(dimethylamino)-, **lithium salt**
RL: RCT (Reactant); RACT (Reactant or reagent)
(activation agent; regioselective lithiation of 2-alkoxypyridines)
IT 75-77-4, Chlorotrimethylsilane, reactions 78-93-3, Ethyl methyl ketone, reactions 88-10-8, N,N-Diethylcarbamoyl chloride 109-72-8, Butyllithium, reactions 624-92-0, Dimethyldisulfide **1628-89-3**, 2-Methoxypyridine
RL: RCT (Reactant); RACT (Reactant or reagent)
(regioselective lithiation of 2-alkoxypyridines)
IT **1628-89-3**, 2-Methoxypyridine

RL: RCT (Reactant); RACT (Reactant or reagent)
(regioselective lithiation of 2-alkoxypyridines)
RN 1628-89-3 HCA
CN Pyridine, 2-methoxy- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L77 ANSWER 4 OF 7 HCA COPYRIGHT 2003 ACS
120:106773 Piperidinyl group-containing tricyclic antipsychotic agents.
Jacobs, Robert T.; Klimas, Thaddeus T.; Ohnmacht, Cyrus J.; Terpko, Marc O. (Imperial Chemical Industries PLC, UK). Can. Pat. Appl. CA 2076191 AA 19930216, 114 pp. (English). CODEN: CPXXEB. APPLICATION: CA 1992-2076191 19920814. PRIORITY: GB 1991-17639 19910815.
GI



I

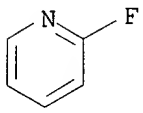
AB The title compds. I [R1 = C1-6 alkyl, (un)substituted Ph (un)substituted naphthyl, (un)substituted C1-3 phenylalkyl, (un)substituted C1-3 naphthylalkyl, (un)substituted 5- or 6-membered heteroaryl, (un)substituted C1-3 heteroarylalkyl; X, Y = H, halogen, C1-6 alkoxy], which are dopamine D2 receptor antagonists, useful in the treatment of neuropsychiatric illnesses (no data), are prepd. and I-contg. pharmaceutical formulations presented. Thus, 1-(2-chloro-9,10-dihydro-9,10-methanoanthracen-9-ylmethyl)-4-piperidone was reacted in the presence of **LiBr**, THF, and LiCMe3, producing 1-(2-chloro-9,10-dihydro-9,10-methanoanthracen-9-ylmethyl)-4-(1,1-dimethylethyl)piperidin-4-ol (II) in 52% yield. II demonstrated 50% inhibitory concn. on rat striatal membrane-derived dopamine D2 receptors of 3 nM.
IC ICM C07D401-02
ICS C07D405-04; C07D409-04; C07D417-04; C07D211-44; C07D211-74; A61K031-435; A61K031-495
CC 27-16 (Heterocyclic Compounds (One Hetero Atom))
Section cross-reference(s): 1, 63
IT 67-56-1, Methanol, reactions 67-63-0, 2-Propanol, reactions 71-23-8, 1-Propanol, reactions 75-08-1, Ethanethiol 75-66-1 75-77-4, Trimethylsilyl chloride, reactions 75-89-8, 2,2,2-Trifluoroethanol 92-66-0, 4-Bromobiphenyl 93-61-8, N-Methylformanilide 95-15-8, Benzo[b]thiophene 95-16-9, Benzothiazole 100-44-7, Benzyl chloride, reactions 100-51-6, Benzyl alcohol, reactions 104-92-7, 4-Bromoanisole 107-10-8, Propylamine, reactions 108-02-1, 2-Dimethylaminoethanethiol 108-05-4, Acetic acid ethenyl ester, reactions 108-99-6, 3-Picoline 109-04-6, 2-Bromopyridine 109-06-8, 2-Picoline 109-83-1, N-Methylethanolamine 110-00-9, **Furan** 110-02-1, Thiophene

123-75-1, Pyrrolidine, reactions 131-09-9, 2-Chloroanthraquinone 288-47-1, Thiazole **372-48-5**, 2-Fluoropyridine 576-83-0 620-08-6, 4-Methoxypyridine 624-28-2, 2,5-Dibromopyridine 626-55-1, 3-Bromopyridine 771-99-3, 4-Phenylpiperidine 824-94-2, 4-Methoxybenzyl chloride 872-31-1, 3-Bromothiophene 1126-81-4, 4-Acetamidothiophenol 1532-97-4, 4-Bromoisoquinoline 1976-04-1 2052-07-5, 2-Bromobiphenyl 2113-57-7, 3-Bromobiphenyl 2249-28-7, 4-Hydroxy-4-(3-trifluoromethylphenyl)piperidine 2398-37-0, 3-Bromoanisole 2942-13-4 3034-53-5, 2-Bromothiazole 3888-65-1 4595-59-9 4965-36-0, 7-Bromoquinoline 5033-22-7 5183-78-8, N-Methylbenzenesulfonamide 5332-24-1, 3-Bromoquinoline 5382-16-1, 4-Hydroxypiperidine 6931-16-4, 2-Methoxyquinoline 7010-86-8 13472-60-1 14417-01-7, N,N-Dimethylbenzenesulfonamide 16110-09-1, 2,5-Dichloropyridine 18162-48-6 20826-04-4, 5-Bromonicotinic acid 22037-28-1, 3-**Bromofuran** 23705-37-5, N-Propylbenzenesulfonamide 35088-86-9 39512-49-7, 4-(4-Chlorophenyl)-4-hydroxypiperidine 40473-07-2, 2-Bromo-6-methoxypyridine 40807-61-2, 4-Hydroxy-4-phenylpiperidine 59907-37-8, N,N-Dimethyl-4-methoxybenzenesulfonamide 60070-19-1 149605-51-6 152352-04-0 152352-22-2 152441-31-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, in prepn. of tricyclic dopamine D2 receptor antagonists)

IT **372-48-5**, 2-Fluoropyridine
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, in prepn. of tricyclic dopamine D2 receptor antagonists)

RN 372-48-5 HCA

CN Pyridine, 2-fluoro- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



L77 ANSWER 5 OF 7 HCA COPYRIGHT 2003 ACS

109:65828 Preparation and characterization of ruthenium complexes with the new 4,4',4"-tri-tert-butylterpyridine ligand and with 4,4'-di-tert-butylbipyridine. Ben Hadda, T.; Le Bozec, H. (Lab. Chim. Coord. Org., Univ. Rennes, Rennes, 35042, Fr.). Polyhedron, 7(7), 575-7 (English) 1988. CODEN: PLYHDE. ISSN: 0277-5387.

AB An efficient procedure for the prepn. of 4,4',4''-tri-tert-butylterpyridine (trpy*) which is formed **together** with 4,4'-di-tert-butylbipyridine (bipy*) is described, and the prepn. of Ru(trpy*)Cl3, [Ru(trpy*)L2Cl]PF6 (L2 = 2,2'-bipyridine, bipy*), and Ru(bipy*)2Cl2 and their characterization by cyclic-voltammetry, UV-visible and 1H NMR spectroscopy are reported. Introduction of tert-Bu substituents increases the soly. of the resultant complexes and enhances the electron donating influence of the trpy ligand.

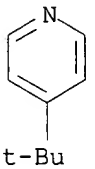
CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 27

IT **3978-81-2**, 4-tert-Butylpyridine
RL: RCT (Reactant); RACT (Reactant or reagent)
(coupling reaction of, in presence of palladium on carbon)

IT 75777-86-5P
RL: PREP (Preparation)
(formation of luminescent, from ruthenium **chloride**, bipyridine and **lithium chloride** in ethylene glycol)

IT 68-12-2, Dimethylformamide, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with ruthenium chloride, tert-butylpyridine and

**lithium chloride**)
IT **3978-81-2**, 4-tert-Butylpyridine
RL: RCT (Reactant); RACT (Reactant or reagent)
(coupling reaction of, in presence of palladium on carbon)
RN 3978-81-2 HCA
CN Pyridine, 4-(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)



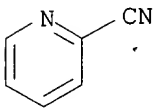

L77 ANSWER 6 OF 7 HCA COPYRIGHT 2003 ACS
106:163339 Standard chemical exergy of some elements and compounds on the planet Earth. Morris, David R.; Szargut, Jan (Dep. Chem. Eng., Univ. New Brunswick, Fredericton, NB, E3B 5A3, Can.). Energy (Oxford, United Kingdom), 11(8), 733-55 (English) 1986. CODEN: ENEYDS. ISSN: 0360-5442.
AB Values of the std. chem. exergy of 49 elements and some inorg. and org. compds. of those elements, are proposed. The values for 9 elements are based on the atm. as the ref. substance; for 27 elements, values are based on the hydrosphere as the ref. substance; for 13 elements, values are based on the lithosphere as the ref. substance. Values of the std. chem. exergy of some inorg. compds. in the ideal aq. soln. of unit molarity are also presented. Amongst the compds., neg. values of the std. chem. exergy arise only for the nitrates of Ca, K and Na. These compds. should form spontaneously but formation is kinetically blocked. It is recommended that the proposed values be adopted for exergy anal. calcns.
CC 69-2 (Thermodynamics, Thermochemistry, and Thermal Properties)
Section cross-reference(s): 53
ST chem exergy element **compd**; inorg **compd** std chem exergy; org **compd** std chem exergy
IT 50-00-0, properties 50-71-5 52-90-4, uses and miscellaneous 56-23-5, Carbon tetrachloride, properties 56-40-6, Aminoacetic acid, properties 56-84-8, properties 57-00-1 57-10-3, Palmitic acid, properties 57-13-6, Urea, properties 57-50-1, Saccharose, properties 60-27-5 64-17-5, Ethyl alcohol, properties 64-18-6, Formic acid, properties 64-19-7, properties 65-85-0, properties 67-56-1, Methanol, properties 67-63-0, 2-Propanol, properties 67-64-1, Acetone, properties 68-94-0 69-65-8, Mannit 69-89-6 69-93-2, properties 70-47-3, properties 71-41-0, Amyl alcohol, properties 71-43-2, Benzene, properties 73-24-5, Adenine, properties 73-40-5 74-82-8, Methane, properties 74-84-0, Ethane, properties 74-85-1, Ethylene, properties 74-86-2, Acetylene, properties 74-98-6, Propane, properties 74-99-7, Propyne 75-07-0, Acetic aldehyde, properties 75-08-1 75-15-0, Carbon disulfide, properties 75-18-3 75-19-4, Cyclopropane 75-20-7, Calcium carbide 75-21-8, Ethylene oxide, properties 75-85-4, 2-Methyl-2-butanol 85-01-8, properties 85-44-9, Phthalic acid anhydride 87-79-6, L-Sorbose 87-85-4 88-99-3, properties 91-20-3, properties 91-57-6, 2-Methylnaphthalene 95-47-6, properties 95-93-2, 1,2,4,5-Tetramethylbenzene 96-37-7, Methylcyclopentane 96-41-3, Cyclopentanol 97-59-6, Allantoin 98-00-0, Furfuryl alcohol 100-41-4, Ethylbenzene, properties 100-51-6, properties **100-70-9**, 2-Cyanopyridine 101-84-8, Diphenyl **ether** 103-65-1, n-Propylbenzene 104-51-8, n-Butylbenzene 104-72-3, n-Decylbenzene 106-97-8, Butane, properties 106-98-9, properties 107-00-6, 1-Butyne 107-03-9 107-21-1, properties 107-92-6, properties 108-78-1,

properties 108-87-2, Methylcyclohexane 108-88-3, properties 108-93-0, Cyclohexanol, properties 108-95-2, properties 108-98-5, uses and miscellaneous 109-66-0, Pentane, properties 109-79-5 110-00-9 110-02-1 110-15-6, properties 110-17-8, uses and miscellaneous 110-54-3, Hexane, properties 110-66-7 110-82-7, Cyclohexane, properties 111-27-3, 1-Hexanol, properties 111-65-9, Octane, properties 111-70-6, 1-Heptanol 111-84-2, Nonane 112-40-3, Dodecane 115-07-1, properties 115-10-6, Dimethyl **ether** 120-12-7, Anthracene, properties 122-39-4, Diphenylamine, properties 123-72-8, Butyl aldehyde 124-18-5, Decane 124-38-9, Carbon dioxide, properties 131-73-7 141-78-6, Ethyl acetate, properties 141-82-2, Malonic acid, properties 142-82-5, properties 144-55-8, Sodium bicarbonate, properties 144-62-7, Oxalic acid, properties 287-23-0, Cyclobutane 302-72-7 352-93-2 409-21-2, Silicon carbide, properties 460-19-5, Cyanogen 461-58-5, Dicyano diamide 463-49-0, Propadiene 471-34-1, Calcium carbonate, properties 495-69-2 497-19-8, Sodium carbonate, properties 502-56-7, Dibutyl ketone 513-44-0 513-77-9, Barium carbonate 513-78-0, Cadmium carbonate 513-79-1, Cobalt carbonate 519-73-3, Triphenylmethane 534-16-7, Silver carbonate 544-76-3, Hexadecane 546-93-0, Magnesium carbonate 554-13-2, Lithium carbonate 554-14-3 563-71-3 584-08-7, Potassium carbonate 584-09-8, Rubidium carbonate 592-41-6, uses and miscellaneous 592-76-7 593-45-3, n-Octadecane 598-62-9, Manganese carbonate 598-63-0, Lead carbonate 608-66-2 612-00-0, 1,1-Diphenylethane 612-71-5, 1,3,5-Triphenylbenzene 616-44-4 624-89-5 628-71-7, 1-Heptyne 629-05-0, 1-Octyne 629-19-6 629-50-5, Tridecane 629-59-4, Tetradecane 629-62-9, Pentadecane 630-08-0, Carbon monoxide, properties 630-76-2, Tetraphenylmethane 693-02-7, 1-Hexyne 700-12-9, Pentamethylbenzene 1111-78-0 1120-21-4, Undecane 1184-64-1 1299-86-1, Aluminum carbide (Al4C3) 1302-42-7, Aluminum sodium oxide (AlNaO2) 1302-54-1 1302-64-3, Adularia 1302-74-5, .alpha.-Corundum, properties 1302-76-7, Kyanite 1302-81-4, Aluminum sulfide (Al2S3) 1303-28-2, Arsenic oxide (As2O5) 1303-58-8, Gold oxide (Au2O3) 1303-86-2, Boron oxide (B2O3), properties 1304-28-5, Barium monoxide, properties 1304-29-6, Barium dioxide 1304-76-3, Bismuth oxide (Bi2O3), properties 1305-62-0, Calcium hydroxide, properties 1305-78-8, Calcium oxide, properties 1306-19-0, Cadmium oxide, properties 1306-23-6, Cadmium sulfide, properties 1307-96-6, uses and miscellaneous 1308-06-1, Cobalt oxide (Co3O4) 1308-38-9, Chromium oxide (Cr2O3), properties 1309-33-7 1309-36-0, Pyrite, uses and miscellaneous 1309-37-1, Iron oxide (Fe2O3), properties 1309-38-2, Magnetite, uses and miscellaneous 1309-42-8, Magnesium hydroxide 1309-48-4, Magnesium oxide, properties 1309-60-0, Lead dioxide 1309-64-4, Antimony oxide (Sb2O3), properties 1310-58-3, Potassium hydroxide, properties 1310-65-2, Lithium hydroxide 1310-73-2, properties 1312-73-8, Potassium sulfide 1313-13-9, Manganese dioxide, properties 1313-27-5, Molybdenum trioxide, properties 1313-59-3, Sodium oxide, properties 1313-82-2, Sodium sulfide, properties 1313-99-1, Nickel oxide, properties 1314-11-0, Strontium oxide, properties 1314-13-2, Zinc oxide, properties 1314-34-7, Vanadium oxide (V2O3) 1314-35-8, Tungsten trioxide, properties 1314-41-6 1314-60-9, Antimony oxide (Sb2O5) 1314-62-1, Vanadium oxide (V2O5), properties 1314-87-0, Lead sulfide 1314-95-0, Tin monosulfide 1314-96-1, Strontium sulfide 1314-98-3, Zinc sulfide, properties 1315-01-1, Tin disulfide 1317-33-5, Molybdenum sulfide (MoS2), properties 1317-34-6, Manganese oxide (Mn2O3) 1317-35-7, Manganese oxide (Mn3O4) 1317-36-8, Lead monoxide, properties 1317-37-9, Iron sulfide (FeS) 1317-38-0, Cupric oxide, properties 1317-39-1, Cuprous oxide, properties 1317-40-4, Cupric sulfide 1317-42-6, Cobalt sulfide 1317-60-8, Hematite, uses and miscellaneous 1318-10-1, Analcime 1318-23-6 1318-74-7, Kaolinite, properties 1332-81-6, Antimony oxide

Cesium oxide (Cs2O) 20427-58-1, Zinc hydroxide 20427-59-2, Cupric hydroxide 20548-54-3, Calcium sulfide 20667-12-3, Silver oxide (Ag2O) 21041-95-2, Cadmium hydroxide 21109-95-5, Barium sulfide (BaS) 21548-73-2, Silver sulfide (Ag2S) 21645-51-2, Aluminum oxide (Al2O3) trihydrate, properties 21651-19-4, Tin monoxide 22205-45-4, Cuprous sulfide 22537-15-1, Chlorine atomic, properties
RL: PRP (Properties)
(std. chem. exergy of)

IT **100-70-9**, 2-Cyanopyridine **7447-41-8**, **Lithium chloride**, properties
RL: PRP (Properties)
(std. chem. exergy of)

RN 100-70-9 HCA
CN 2-Pyridinecarbonitrile (9CI) (CA INDEX NAME)



RN 7447-41-8 HCA
CN Lithium chloride (LiCl) (9CI) (CA INDEX NAME)

Cl—Li

L77 ANSWER 7 OF 7 HCA COPYRIGHT 2003 ACS
102:26813 Cyanation of olefins catalyzed by copper derivatives. Bravo, Eduardo Puentes; Hubert, Andre J.; Noels, Andre F. (Inst. Chim., Univ. Liege, Sart Tilman, 4000, Belg.). Actas Simp. Iberoam. Catal., 9th, Volume 1, 426-35. Soc. Iberoam. Catal.: Lisbon, Port. (Spanish) 1984. CODEN: 52TUAU.

AB Hydrocyanation of butadiene [106-99-0] catalyzed esp. by CuBr gave 3-pentenonitrile [4635-87-4], whereas oxidative cyanation gave 1,4-dicyano-2-butene [1119-85-3] and/or 2-cyanopyridine [**100-70-9**]. The hydrocyanation is favored by polar solvents and acid media. For the oxidative process, formation of dinitrile is favored by halides, nitrile solvents, and O pressure and cyanopyridine formation is favored by the presence of org. bases or Me2SO. Mechanisms are suggested for both reactions. For the hydrocyanation at 68-88.degree. catalyzed by CuBr the activation energy was 16 kcal/mol and the entropy of activation was -40 entropy units and the reaction was first order in CuBr and in HCN and zero order in butadiene initially, rising toward first order as the reaction progressed.

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 23, 27, 35

IT **7550-35-8**
RL: USES (Uses)
(oxidative cyanation of butadiene in presence of copper salts and)

IT 14631-45-9P
RL: IMF (Industrial manufacture); PREP (Preparation)
(prepn. of, by hydrocyanation of Et vinyl **ether**)

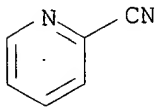
IT **100-70-9P** 1119-85-3P
RL: IMF (Industrial manufacture); PREP (Preparation)
(prepn. of, by oxidative cyanation of butadiene)

IT **7550-35-8**
RL: USES (Uses)
(oxidative cyanation of butadiene in presence of copper salts and)

RN 7550-35-8 HCA
CN Lithium bromide (LiBr) (9CI) (CA INDEX NAME)

Br—Li

TT **100-70-9P**
RL: IMF (Industrial manufacture); PREP (Preparation)
(prepn. of, by oxidative cyanation of butadiene)
RN 100-70-9 HCA
CN 2-Pyridinecarbonitrile (9CI) (CA INDEX NAME)



=> d L78 ti 1-17

L78 ANSWER 1 OF 17 HCA COPYRIGHT 2003 ACS
TI A new convenient procedure to prepare organomanganese reagents from organic halides and activated manganese

L78 ANSWER 2 OF 17 HCA COPYRIGHT 2003 ACS
TI Method for preparation of photographic spectral sensitizer **dispersion**

L78 ANSWER 3 OF 17 HCA COPYRIGHT 2003 ACS
TI Polyhalogenated heterocyclic compounds. Part 42. Fluorinated nitrogen heterocycles with unusual substitution patterns

L78 ANSWER 4 OF 17 HCA COPYRIGHT 2003 ACS
TI Energy-sensitive pyridinium borates as acid-generating agents, their **compositions**, curable **compositions** containing the agents, and cured products

L78 ANSWER 5 OF 17 HCA COPYRIGHT 2003 ACS
TI Fluorescence Quenching Studies of Micellization and Solubilization in Fluorocarbon-Hydrocarbon Surfactant **Mixtures**

L78 ANSWER 6 OF 17 HCA COPYRIGHT 2003 ACS
TI Conductivities of 1:1 salts in 2-cyanopyridine

L78 ANSWER 7 OF 17 HCA COPYRIGHT 2003 ACS
TI Cellulose derivatives with low DS. I. A novel acylation system

L78 ANSWER 8 OF 17 HCA COPYRIGHT 2003 ACS
TI Synthesis of 2-substituted pyridines by the reaction of N-fluoropyridinium fluoride with trimethylsilyl derivatives

L78 ANSWER 9 OF 17 HCA COPYRIGHT 2003 ACS
TI Semiconductive elastic resin-forming **compositions**

L78 ANSWER 10 OF 17 HCA COPYRIGHT 2003 ACS
TI Alkali metal fluorides in graphite - new catalysts in organic synthesis. I. Reactions of polyfluoroaromatic compounds with O- and N-nucleophilic agents

L78 ANSWER 11 OF 17 HCA COPYRIGHT 2003 ACS
TI Cyanophosphate: an efficient intermediate for conversion of carbonyl compounds to nitriles

L78 ANSWER 12 OF 17 HCA COPYRIGHT 2003 ACS
TI Polishable modified electrodes made from cross-linked electroactive **composites** containing particulate carbon

L78 ANSWER 13 OF 17 HCA COPYRIGHT 2003 ACS
TI Preparation of 2,8-bis(trifluoromethyl)-4-quinolinyl 2-piridinyl ketone as a mefloquin intermediate

L78 ANSWER 14 OF 17 HCA COPYRIGHT 2003 ACS
TI Aqueous, liquid, reactive azo dye **compositions**

L78 ANSWER 15 OF 17 HCA COPYRIGHT 2003 ACS
TI Synthesis of unsymmetrical diallyl ketones: the palladium-catalyzed coupling of allyl halides with allyltin reagents in the presence of carbon monoxide

L78 ANSWER 16 OF 17 HCA COPYRIGHT 2003 ACS
TI Synthesis of unsymmetrical diallyl ketones: the palladium-catalyzed coupling of allyl halides with allyltin reagents in the presence of carbon monoxide

L78 ANSWER 17 OF 17 HCA COPYRIGHT 2003 ACS
TI Kinetics of formation and dissociation of complexes of pentacyanoferrate(II) with benzonitrile, dicyanobenzenes and cyanopyridines

=> d L78 2,6 cbib abs hitind hitstr

L78 ANSWER 2 OF 17 HCA COPYRIGHT 2003 ACS
130:146157 Method for preparation of photographic spectral sensitizer **dispersion**. Nishimi, Taisei; Mihayashi, Keiji (Fuji Photo Film Co., Ltd., Japan). Eur. Pat. Appl. EP 895119 A1 19990203, 17 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 1998-114460 19980730. PRIORITY: JP 1997-219005 19970731.
AB The title method comprises dissolving an inorg. salt of an amt. of at least 0.5% by wt. in water which does not substantially contain a surface active agent, an **org. solvent**, and a silver halide emulsion, adding a spectral sensitizer of an amt. of at least 0.5% by wt. in the soln., and dispersing the spectral sensitizer as fine solids. By the method, a dispersion of a spectral sensitizer having a high concn. is obtained.
IC ICM G03C001-005
CC 74-2 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT 7447-40-7, Potassium chloride, uses **7447-41-8, Lithium chloride**, uses 7631-99-4, Sodium nitrate, uses 7647-14-5, Sodium chloride, uses 7647-15-6, Sodium bromide, uses 7757-82-6, Sodium sulfate, uses 7783-20-2, Ammonium sulfate, uses 10043-52-4, Calcium chloride, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(photog. spectral fine dispersion prepn. in presence of)
IT **23216-66-2** 23216-67-3 65293-95-0 113841-24-0 120886-36-4 128140-11-4 220011-33-6

RL: TEM (Technical or engineered material use); USES (Uses)
(photog. spectral sensitizer fine dispersion prepn. in presence of inorg. salts)

IT **7447-41-8, Lithium chloride,** uses
RL: TEM (Technical or engineered material use); USES (Uses)
(photog. spectral fine dispersion prepn. in presence of)

RN 7447-41-8 HCA
CN Lithium chloride (LiCl) (9CI) (CA INDEX NAME)

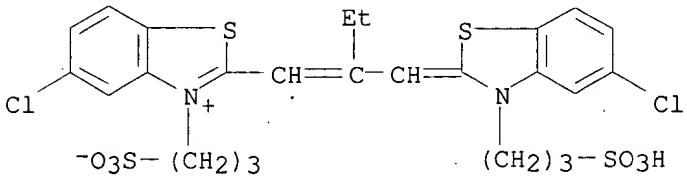
Cl—Li

IT **23216-66-2**
RL: TEM (Technical or engineered material use); USES (Uses)
(photog. spectral sensitizer fine dispersion prepn. in presence of inorg. salts)

RN 23216-66-2 HCA
CN Benzothiazolium, 5-chloro-2-[2-[[5-chloro-3-(3-sulfopropyl)-2(3H)-benzothiazolylidene]methyl]-1-butenyl]-3-(3-sulfopropyl)-, inner salt, compd. with pyridine (1:1) (9CI) (CA INDEX NAME)

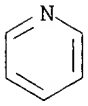
CM 1

CRN 23568-98-1
CMF C25 H26 Cl2 N2 O6 S4




CM 2

CRN 110-86-1
CMF C5 H5 N




L78 ANSWER 6 OF 17 HCA COPYRIGHT 2003 ACS
121:122336 Conductivities of 1:1 salts in 2-cyanopyridine. Hefter, G. T.; Salomon, M. (Power, Sources Div., U.S. Army EPSD, Fort Monmouth, NJ, 07703-5601, USA). Journal of Solution Chemistry, 23(5), 579-93 (English) 1994. CODEN: JSLCAG. ISSN: 0095-9782.

AB Electrolytic conductivities of eight simple 1:1 electrolytes have been measured in dil. solns. of 2-cyanopyridine (2CNP) at 30.degree.. Infinite diln. mobilities and assocn. consts. were calcd. using the Fuoss-Hsia equation. With the exception of LiCF3SO3, all salts show very little assocn., consistent with the very high dielec. const. of 2CNP. The weak assocn. which does occur is attributed to weak ion-solvent interactions. No evidence was found for triple ion formation. Conductivities of concd. solns. of **LiAsF6** in 2CNP increase slowly with concn. reaching a

max. at a concn. of around 0.65 mol-dm-3. These conductances are slightly lower than those in propylene carbonate which has a lower dielec. const. and a higher viscosity. Conductivities of concd. **LiAsF6** solns. in 2CNP **mixts**. with acetonitrile vary monotonically, consistent with soln. viscosities, and show no sign of the max. commonly obsd. in mixed org. solvents.

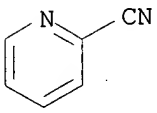
CC 76-1 (Electric Phenomena)
Section cross-reference(s): 68

IT **100-70-9**, 2-Cyanopyridine
RL: PRP (Properties)
(elec. cond. of simple 1:1 electrolytes in)

IT 311-28-4, Tetrabutylammonium iodide 631-40-3, Tetrapropylammonium iodide 7601-89-0, Sodium perchlorate **29935-35-1**, Lithium hexafluoroarsenate **33454-82-9**, Lithium trifluoromethanesulfonate 41524-04-3, Cesium trifluoromethanesulfonate 73491-35-7, Rubidium trifluoromethanesulfonate 90076-65-6
RL: PRP (Properties)
(electrolytic cond. of, in 2-cyanopyridine)

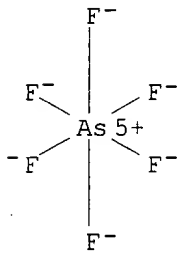
IT **100-70-9**, 2-Cyanopyridine
RL: PRP (Properties)
(elec. cond. of simple 1:1 electrolytes in)

RN 100-70-9 HCA
CN 2-Pyridinecarbonitrile (9CI) (CA INDEX NAME)



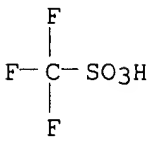

IT **29935-35-1**, Lithium hexafluoroarsenate **33454-82-9**, Lithium trifluoromethanesulfonate
RL: PRP (Properties)
(electrolytic cond. of, in 2-cyanopyridine)

RN 29935-35-1 HCA
CN Arsenate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)




● $Li^+$

RN 33454-82-9 HCA
CN Methanesulfonic acid, trifluoro-, lithium salt (8CI, 9CI) (CA INDEX NAME)



=> d L79 1-27 ti

L79 ANSWER 1 OF 27 HCA COPYRIGHT 2003 ACS
TI Carbonaceous materials and their manufacture, vanadium oxide derivatives, solid ion conductive electrochemical elements, and secondary nonaqueous electrolyte batteries

L79 ANSWER 2 OF 27 HCA COPYRIGHT 2003 ACS
TI Photoelectric converters and photoelectrochemical cells

L79 ANSWER 3 OF 27 HCA COPYRIGHT 2003 ACS
TI Electrolytes and photoelectrochemical cells

L79 ANSWER 4 OF 27 HCA COPYRIGHT 2003 ACS
TI Electrolytes for lithium secondary batteries

L79 ANSWER 5 OF 27 HCA COPYRIGHT 2003 ACS
TI Photoelectric converters and photoelectrochemical cells thereof

L79 ANSWER 6 OF 27 HCA COPYRIGHT 2003 ACS
TI Cathode active mass, batteries using the active mass, and manufacture of the batteries

L79 ANSWER 7 OF 27 HCA COPYRIGHT 2003 ACS
TI Secondary nonaqueous electrolyte batteries using organic salt containing electrolytes

L79 ANSWER 8 OF 27 HCA COPYRIGHT 2003 ACS
TI Secondary N-fluoropyridinium salt batteries

L79 ANSWER 9 OF 27 HCA COPYRIGHT 2003 ACS
TI Batteries using cathode active mass of compounds having nitrogen-fluorine bonds

L79 ANSWER 10 OF 27 HCA COPYRIGHT 2003 ACS
TI Method, apparatus, and material for generating electric energy

L79 ANSWER 11 OF 27 HCA COPYRIGHT 2003 ACS
TI Electrochemical behavior of iron disulfide cathodes for aluminum secondary cells around 100.degree.C

L79 ANSWER 12 OF 27 HCA COPYRIGHT 2003 ACS
TI Secondary lithium batteries

L79 ANSWER 13 OF 27 HCA COPYRIGHT 2003 ACS
TI Polyphosphazenes and their uses

L79 ANSWER 14 OF 27 HCA COPYRIGHT 2003 ACS
TI Secondary batteries with molten-salt electrolytes

L79 ANSWER 15 OF 27 HCA COPYRIGHT 2003 ACS
TI Electrolytes for secondary batteries

L79 ANSWER 16 OF 27 HCA COPYRIGHT 2003 ACS
TI Application of ambient temperature solid electrolytes to miniature batteries

L79 ANSWER 17 OF 27 HCA COPYRIGHT 2003 ACS
TI Secondary aluminum batteries

L79 ANSWER 18 OF 27 HCA COPYRIGHT 2003 ACS
TI High-rate and high energy-density battery with acidic electrolyte containing cation component, Lewis acid and nitrile

L79 ANSWER 19 OF 27 HCA COPYRIGHT 2003 ACS
TI Secondary nonaqueous-electrolyte batteries

L79 ANSWER 20 OF 27 HCA COPYRIGHT 2003 ACS
TI Battery cathodes containing metal complexes

L79 ANSWER 21 OF 27 HCA COPYRIGHT 2003 ACS
TI Secondary solid-state batteries with halogen-redox cathodes

L79 ANSWER 22 OF 27 HCA COPYRIGHT 2003 ACS
TI Battery

L79 ANSWER 23 OF 27 HCA COPYRIGHT 2003 ACS
TI Potential dependence of the stretching frequency of carbon monoxide bound to the surface of platinum **dispersed** in an electrode-confined redox polymer

L79 ANSWER 24 OF 27 HCA COPYRIGHT 2003 ACS
TI Prospects for alkylpyridinium aluminum chloride melts

L79 ANSWER 25 OF 27 HCA COPYRIGHT 2003 ACS
TI Solid-state batteries

L79 ANSWER 26 OF 27 HCA COPYRIGHT 2003 ACS
TI **Lithium**-thionyl **chloride** battery

L79 ANSWER 27 OF 27 HCA COPYRIGHT 2003 ACS
TI Reaction mechanisms in the lithium/lithium iodide/1-n-butylpyridinium polyiodide solid electrolyte cell

=> d 3,4,7-8,12-19,22,24-27,1,2,5,20,21 cbib abs hitind hitstr

L79 ANSWER 3 OF 27 HCA COPYRIGHT 2003 ACS
132:253557 Electrolytes and photoelectrochemical cells. Takisawa, Hiroo (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000100485 A2 20000407, 41 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-285947 19980922.
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The electrolytes contain a non-crosslinked polymer of formula: -[CH2CR1(D)dR2]a[CH2CR3(E)eR4]b(A)c-, in which R1 and R3 = H, alkyl, or aryl groups, R2 = substituent contg. quaternary salt of N-contg. heterocyclic ring or quaternary ammonium salt, R4 = substituent contg. N contg. heterocyclic ring or tertiary amine group, D and E are connection groups, d and e are 0 or 1, A = repeating units contg. ethylenic unsatn. group, a, b, and c are wt **compns**. of the resp. repeating units and equal to 1-100, 0-99, and 0-80%, resp. The electrolytes may also contain I (Z1 forms a 5- or 6-membered ring cation with N, R51 = alkyl or alkenyl group, f = 1 or 3), esp. II (R52 = substituent, g = 0-5) and III (G = O, S, or -NR54, R54 = substituent, R 53 = substituent, c = 0-3). The photoelectrochem. cells have a charge transferring layer contg. the above electrolyte, an illumination sensitive semiconductor, and a counter electrode.

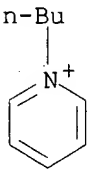
IC ICM H01M014-00
ICS C08F008-44; C08F026-06; H01L031-04

CC **52-2** (Electrochemical, Radiational, and Thermal Energy Technology)

IT 311-28-4, Tetrabutylammonium iodide **874-81-7 10377-51-2**
, Lithium iodide 27029-44-3 **32353-64-3** 60300-54-1
65039-05-6 178631-05-5 204854-22-8 **258273-67-5** 258273-68-6
**258279-35-5 258279-38-8** 262424-60-2 262424-62-4
262424-66-8 262424-69-1 262424-72-6 262424-74-8 262424-76-0
262424-78-2
RL: DEV (Device component use); USES (Uses)
(electrolytes contg. non-crosslinked polymers for photoelectrochem. cells)

IT **874-81-7 10377-51-2**, Lithium iodide **32353-64-3**
**258273-67-5 258279-35-5 258279-38-8**
RL: DEV (Device component use); USES (Uses)
(electrolytes contg. non-crosslinked polymers for photoelectrochem. cells)

RN 874-81-7 HCA
CN Pyridinium, 1-butyl-, iodide (8CI, 9CI) (CA INDEX NAME)

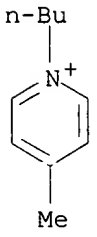



● I-

RN 10377-51-2 HCA
CN Lithium iodide (LiI) (9CI) (CA INDEX NAME)

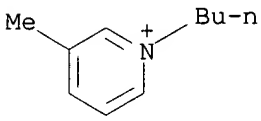
I—Li

RN 32353-64-3 HCA
CN Pyridinium, 1-butyl-4-methyl-, iodide (9CI) (CA INDEX NAME)



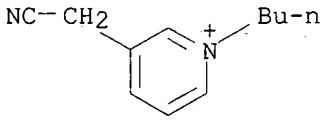
● $I^-$

RN 258273-67-5 HCA
CN Pyridinium, 1-butyl-3-methyl-, iodide (9CI) (CA INDEX NAME)



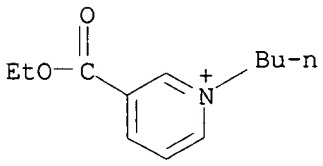
● $I^-$

RN 258279-35-5 HCA
CN Pyridinium, 1-butyl-3-(cyanomethyl)-, iodide (9CI) (CA INDEX NAME)



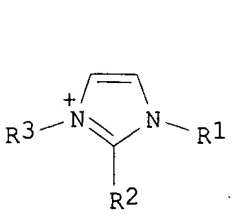
● $I^-$

RN 258279-38-8 HCA
CN Pyridinium, 1-butyl-3-(ethoxycarbonyl)-, iodide (9CI) (CA INDEX NAME)

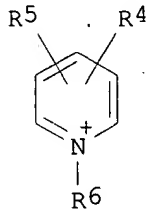


● $I^-$

L79 ANSWER 4 OF 27 HCA COPYRIGHT 2003 ACS
131:325053 Electrolytes for lithium secondary batteries. Kominato, Asao; Yasukawa, Shigeki; Mori, Shoichiro (Mitsubishi Chemical Industries Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11307121 A2 19991105 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-111795 19980422.
GI




I




II

AB The electrolytes comprise **Li salt**, std. temp. molten salt of quaternary imidazolium I (R1, R3 = C1-6 alkyl; R2 = H, C1-6 alkyl) or quaternary pyridinium II (R6 = C1-10 alkyl; R4, R5 = H, C1-6 alkyl), and 1-130 vol.% cyclic org. compds. The electrolytes have fire resistance and give secondary lithium batteries with excellent cycle characteristics.

IC ICM H01M010-40
ICS C07D233-54

CC **52-2** (Electrochemical, Radiational, and Thermal Energy Technology)

IT Ethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(cyclic; nonaq. electrolytes for lithium secondary batteries contg. imidazolium or pyridinium salts and cyclic **compd**. solvents)

IT Pyridinium compounds
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolytes; nonaq. electrolytes for lithium secondary batteries contg. imidazolium or pyridinium salts and cyclic **compd**. solvents)

IT Quaternary ammonium compounds, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(imidazolinium, electrolytes; nonaq. electrolytes for lithium secondary batteries contg. imidazolium or pyridinium salts and cyclic **compd**. solvents)

IT Battery electrolytes
Fire-resistant materials
(nonaq. electrolytes for lithium secondary batteries contg. imidazolium or pyridinium salts and cyclic **compd**. solvents)

IT Lactones
RL: TEM (Technical or engineered material use); USES (Uses)
(nonaq. electrolytes for lithium secondary batteries contg. imidazolium or pyridinium salts and cyclic **compd**. solvents)

IT Cyclic compounds
RL: TEM (Technical or engineered material use); USES (Uses)
(sulfur-contg.; nonaq. electrolytes for lithium secondary batteries contg. imidazolium or pyridinium salts and cyclic **compd**. solvents)

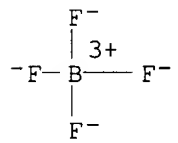
IT 96-48-0, .gamma.-Butyrolactone 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 108-98-5, Thiophenol, uses 109-99-9, Tetrahydrofuran, uses 123-91-1, 1,4-Dioxane, uses 126-33-0, Sulfolane

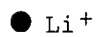
142-68-7, Tetrahydropyran 646-06-0, 1,3-Dioxolane 1120-71-4, 1,3-Propanesultone 3741-38-6, Ethylene sulfite
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolyte solvent; nonaq. electrolytes for lithium secondary batteries contg. imidazolium or pyridinium salts and cyclic **compd**. solvents)

IT 14024-11-4, Lithium tetrachloroaluminate **14283-07-9**, Lithium tetrafluoroborate 80432-05-9, 1-Ethyl-3-methylimidazolium tetrachloroaluminate(1-) 143314-16-3, 1-Ethyl-3-methylimidazolium tetrafluoroborate **203389-28-0**, N-Butylpyridinium tetrafluoroborate
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolyte; nonaq. electrolytes for lithium secondary batteries contg. imidazolium or pyridinium salts and cyclic **compd**. solvents)

IT **14283-07-9**, Lithium tetrafluoroborate **203389-28-0**, N-Butylpyridinium tetrafluoroborate
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolyte; nonaq. electrolytes for lithium secondary batteries contg. imidazolium or pyridinium salts and cyclic **compd**. solvents)

RN 14283-07-9 HCA
CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)

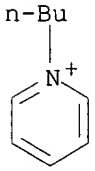




RN 203389-28-0 HCA
CN Pyridinium, 1-butyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

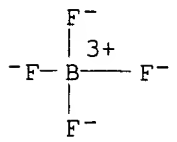
CM 1

CRN 45806-95-9
CMF C9 H14 N



CM 2

CRN 14874-70-5
CMF B F4
CCI CCS



L79 ANSWER 7 OF 27 HCA COPYRIGHT 2003 ACS
127:360946 Secondary nonaqueous electrolyte batteries using organic salt containing electrolytes. Negoro, Masayuki; Okazaki, Masaki (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 09283176 A2 19971031 Heisei, 16 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-92382 19960415.

AB The batteries use Li intercalating cathodes, amorphous chalcogenide and/or oxide anodes contg. .gtoreq.3 of Group 1, group 2, group 13-15 elements, separators, and a nonaq. **Li salt** electrolyte soln. which contains. .gtoreq.1 org. anion contg. metal salt. The metal salt can be an org. alkali metal **compd.**, a metal amido **compd** ., or a metal alkoxide,. These batteries have good charge-discharge performance.

IC ICM H01M010-40
ICS H01M010-40; H01M004-58

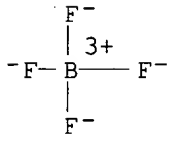
CC **52-2** (Electrochemical, Radiational, and Thermal Energy Technology)

IT **14283-07-9**, Lithium fluoroborate **21324-40-3**, Lithium hexafluorophosphate 191231-18-2
RL: DEV (Device component use); USES (Uses)
(electrolytes contg. org. metal salt additives for secondary lithium batteries with amorphous chalcogenide and oxide anodes)

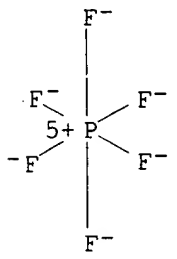
IT 109-72-8, n-Butyl lithium, uses 124-41-4, Sodium methoxide 141-52-6, Sodium ethoxide 591-51-5, Phenyl lithium 598-30-1, sec-Butyl lithium 733-90-4, Triphenylmethyl lithium 865-34-9, Lithium methoxide 865-47-4 865-48-5 1070-89-9 1907-33-1 2245-68-3 2388-07-0, Lithium ethoxide 3585-33-9, Dimethylamido lithium 4111-54-0 **38227-87-1** 67459-71-6 72316-20-2
RL: MOA (Modifier or additive use); USES (Uses)
(electrolytes contg. org. metal salt additives for secondary lithium batteries with amorphous chalcogenide and oxide anodes)

IT **14283-07-9**, Lithium fluoroborate **21324-40-3**, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(electrolytes contg. org. metal salt additives for secondary lithium batteries with amorphous chalcogenide and oxide anodes)

RN 14283-07-9 HCA
CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)

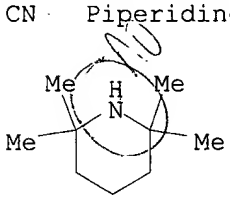


RN 21324-40-3 HCA
CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● $Li^+$

IT **38227-87-1**
RL: MOA (Modifier or additive use); USES (Uses)
(electrolytes contg. org. metal salt additives for secondary lithium batteries with amorphous chalcogenide and oxide anodes)
RN 38227-87-1 HCA
CN Piperidine, 2,2,6,6-tetramethyl-, lithium salt (9CI) (CA INDEX NAME)



● Li

L79 ANSWER 8 OF 27 HCA COPYRIGHT 2003 ACS
125:200734 Secondary N-fluoropyridinium salt batteries. Umemoto, Teruo; Takahashi, Ikuko; Adachi, Kenji; Noda, Nahomi (Daikin Ind Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 08171915 A2 19960702 Heisei, 52 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-271385 19951019. PRIORITY: JP 1994-282493 19941022.
AB The batteries use cathodes having a N-F bond contg. **compd**. as cathode active mass on a carbonaceous collector.
IC ICM H01M004-60
ICS H01M004-02; H01M004-06; H01M004-64; H01M006-18
CC **52-2** (Electrochemical, Radiational, and Thermal Energy Technology)
ST battery nitrogen fluorine **compd** carbonaceous cathode
IT Carbon black, uses
RL: MOA (Modifier or additive use); USES (Uses)
(cathodes contg. nitrogen-fluorine bond contg. **compd**. active mass and carbonaceous collectors for batteries)
IT Cathodes
(battery, cathodes contg. nitrogen-fluorine bond contg. **compd**. active mass and carbonaceous collectors for batteries)
IT **14283-07-9**, Lithium fluoroborate
RL: MOA (Modifier or additive use); USES (Uses)

(additives for cathodes contg. nitrogen-fluorine bond contg. **compd.** active mass and carbonaceous collectors for batteries)

IT 7439-93-2, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(anodes for batteries using cathodes contg. nitrogen-fluorine bond contg. **compd.** active mass and carbonaceous collectors)

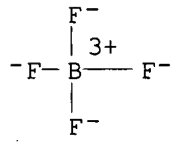
IT **107264-09-5**, N-Fluoropyridinium tetrafluoroborate
RL: DEV (Device component use); USES (Uses)
(cathodes contg. nitrogen-fluorine bond contg. **compd.** active mass and carbonaceous collectors for batteries)

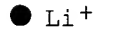
IT **178439-26-4**
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(cathodes contg. nitrogen-fluorine bond contg. **compd.** active mass and carbonaceous collectors for batteries)

IT 88303-12-2 **107263-95-6**, N-Fluoropyridinium trifluoromethanesulfonate **107264-00-6**, 1-Fluoro-2,4,6-trimethylpyridinium triflate **107264-06-2** **107264-10-8** **107264-12-0** **109704-95-2** **109705-15-9** **116241-53-3** **116241-56-6** **116241-58-8** **116241-63-5** **119071-59-9** 130409-72-2 **130433-68-0** **130433-70-4** **130433-72-6** **130433-76-0** **130433-77-1** 131307-35-2 **132041-54-4** 133745-75-2 135182-74-0 135183-01-6 **140623-89-8** 140681-55-6 147541-09-1 160152-29-4 160152-30-7 160152-32-9 **178439-28-6** 181174-92-5
RL: TEM (Technical or engineered material use); USES (Uses)
(cathodes contg. nitrogen-fluorine bond contg. **compd.** active mass and carbonaceous collectors for batteries)

IT **14283-07-9**, Lithium fluoroborate
RL: MOA (Modifier or additive use); USES (Uses)
(additives for cathodes contg. nitrogen-fluorine bond contg. **compd.** active mass and carbonaceous collectors for batteries)

RN 14283-07-9 HCA
CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



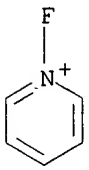


IT **107264-09-5**, N-Fluoropyridinium tetrafluoroborate
RL: DEV (Device component use); USES (Uses)
(cathodes contg. nitrogen-fluorine bond contg. **compd.** active mass and carbonaceous collectors for batteries)

RN 107264-09-5 HCA
CN Pyridinium, 1-fluoro-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

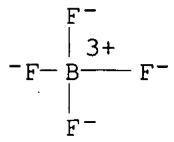
CM 1

CRN 88795-94-2
CMF C5 H5 F N



CM 2

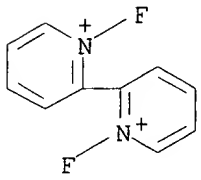
CRN 14874-70-5
CMF B F4
CCI CCS



IT **178439-26-4**
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(cathodes contg. nitrogen-fluorine bond contg. **compd**. active mass and carbonaceous collectors for batteries)
RN 178439-26-4 HCA
CN 2,2'-Bipyridinium, 1,1'-difluoro-, bis[tetrafluoroborate(1-)] (9CI) (CA INDEX NAME)

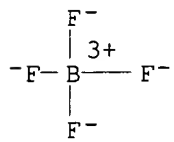
CM 1

CRN 178439-25-3
CMF C10 H8 F2 N2



CM 2

CRN 14874-70-5
CMF B F4
CCI CCS



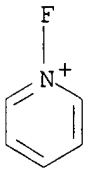
IT **107263-95-6**, N-Fluoropyridinium trifluoromethanesulfonate
**107264-00-6**, 1-Fluoro-2,4,6-trimethylpyridinium triflate

**107264-06-2 107264-10-8 107264-12-0**
**109704-95-2 109705-15-9 116241-53-3**
**116241-56-6 116241-58-8 116241-63-5**
**119071-59-9 130433-68-0 130433-70-4**
**130433-72-6 130433-76-0 130433-77-1**
**132041-54-4 140623-89-8 178439-28-6**
RL: TEM (Technical or engineered material use); USES (Uses)
(cathodes contg. nitrogen-fluorine bond contg. **compd.** active mass and carbonaceous collectors for batteries)

RN 107263-95-6 HCA
CN Pyridinium, 1-fluoro-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

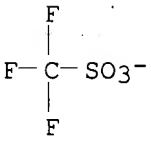
CM 1

CRN 88795-94-2
CMF C5 H5 F N



CM 2

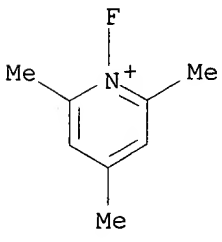
CRN 37181-39-8
CMF C F3 O3 S



RN 107264-00-6 HCA
CN Pyridinium, 1-fluoro-2,4,6-trimethyl-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

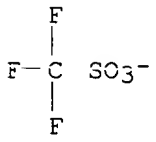
CM 1

CRN 107263-99-0
CMF C8 H11 F N



CM 2

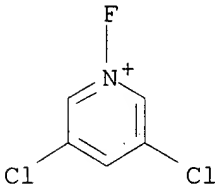
CRN 37181-39-8
CMF C F3 O3 S



RN 107264-06-2 HCA
CN Pyridinium, 3,5-dichloro-1-fluoro-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

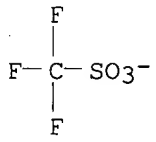
CM 1

CRN 107264-05-1
CMF C5 H3 Cl2 F N



CM 2

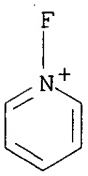
CRN 37181-39-8
CMF C F3 O3 S



RN 107264-10-8 HCA
CN Pyridinium, 1-fluoro-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

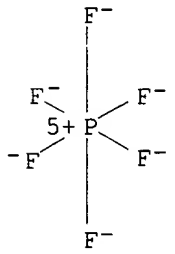
CM 1

CRN 88795-94-2
CMF C5 H5 F N



CM 2

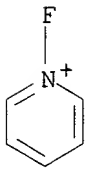
CRN 16919-18-9
CMF F6 P
CCI CCS



RN 107264-12-0 HCA
CN Pyridinium, 1-fluoro-, (OC-6-11)-hexafluoroantimonate(1-) (9CI) (CA INDEX NAME)

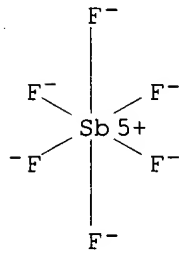
CM 1

CRN 88795-94-2
CMF C5 H5 F N



CM 2

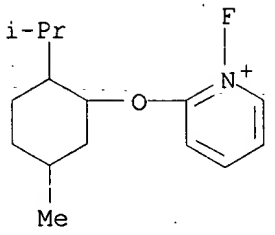
CRN 17111-95-4
CMF F6 Sb
CCI CCS



RN 109704-95-2 HCA
CN Pyridinium, 1-fluoro-2-[[5-methyl-2-(1-methylethyl)cyclohexyl]oxy]-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

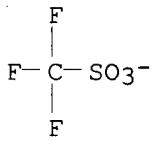
CM 1

CRN 109704-94-1
CMF C15 H23 F N O



CM 2

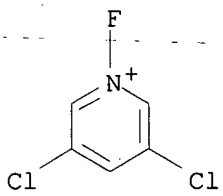
CRN 37181-39-8
CMF C F3 O3 S



RN 109705-15-9 HCA
CN Pyridinium, 3,5-dichloro-1-fluoro-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

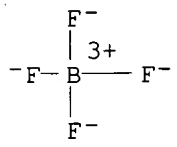
CM 1

CRN 107264-05-1
CMF C5 H3 Cl2 F N



CM 2

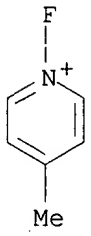
CRN 14874-70-5
CMF B F4
CCI CCS



RN 116241-53-3 HCA
CN Pyridinium, 1-fluoro-4-methyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

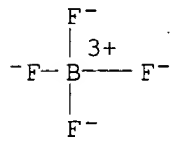
CM 1

CRN 88795-97-5
CMF C6 H7 F N



CM 2

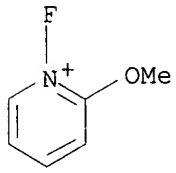
CRN 14874-70-5
CMF B F4
CCI CCS



RN 116241-56-6 HCA
CN Pyridinium, 1-fluoro-2-methoxy-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

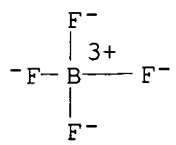
CM 1

CRN 107264-01-7
CMF C6 H7 F N O



CM 2

CRN 14874-70-5
CMF B F4
CCI CCS

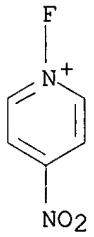


RN 116241-58-8 HCA

CN Pyridinium, 1-fluoro-4-nitro-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

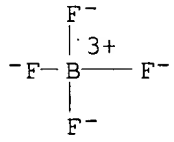
CM 1

CRN 109705-10-4
CMF C5 H4 F N2 O2



CM 2

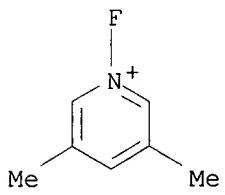
CRN 14874-70-5
CMF B F4
CCI CCS



RN 116241-63-5 HCA
CN Pyridinium, 1-fluoro-3,5-dimethyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

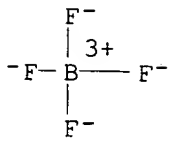
CM 1

CRN 109704-89-4
CMF C7 H9 F N



CM 2

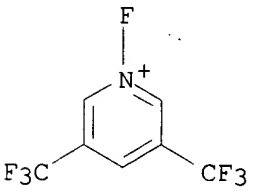
CRN 14874-70-5
CMF B F4
CCI CCS



RN 119071-59-9 HCA
CN Pyridinium, 1-fluoro-3,5-bis(trifluoromethyl)-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

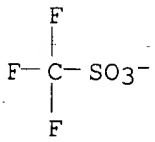
CM 1

CRN 119071-52-2
CMF C7 H3 F7 N



CM 2

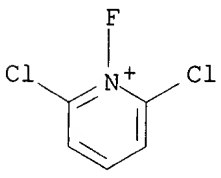
CRN 37181-39-8
CMF C F3 O3 S



RN 130433-68-0 HCA
CN Pyridinium, 2,6-dichloro-1-fluoro-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

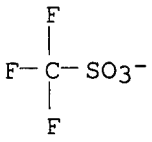
CRN 130433-67-9
CMF C5 H3 Cl2 F N



CM 2

CRN 37181-39-8

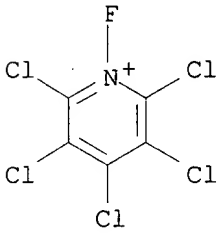
CMF C F3 O3 S



RN 130433-70-4 HCA
CN Pyridinium, 2,3,4,5,6-pentachloro-1-fluoro-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

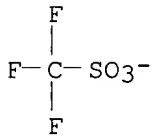
CM 1

CRN 130433-69-1
CMF C5 Cl5 F N



CM 2

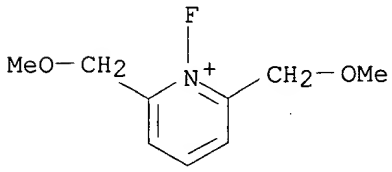
CRN 37181-39-8
CMF C F3 O3 S



RN 130433-72-6 HCA
CN Pyridinium, 1-fluoro-2,6-bis(methoxymethyl)-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

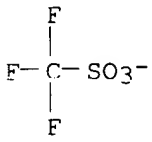
CM 1

CRN 130433-71-5
CMF C9 H13 F N O2



CM 2

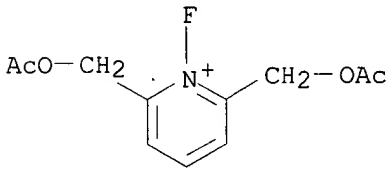
CRN 37181-39-8
CMF C F3 O3 S



RN 130433-76-0 HCA
CN Pyridinium, 2,6-bis[(acetyloxy)methyl]-1-fluoro-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

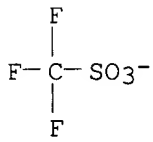
CM 1

CRN 130433-75-9
CMF C11 H13 F N O4



CM 2

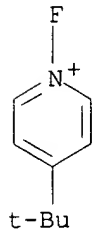
CRN 37181-39-8
CMF C F3 O3 S



RN 130433-77-1 HCA
CN Pyridinium, 4-(1,1-dimethylethyl)-1-fluoro-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

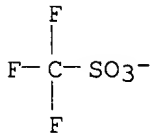
CM 1

CRN 116241-54-4
CMF C9 H13 F N



CM 2

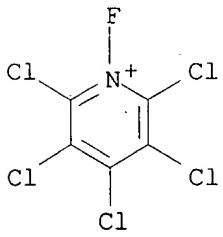
CRN 37181-39-8
CMF C F3 O3 S



RN 132041-54-4 HCA
CN Pyridinium, 2,3,4,5,6-pentachloro-1-fluoro-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

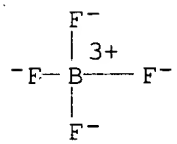
CM 1

CRN 130433-69-1
CMF C5 Cl5 F N



CM 2

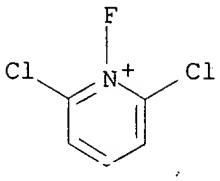
CRN 14874-70-5
CMF B F4
CCI CCS



RN 140623-89-8 HCA
CN Pyridinium, 2,6-dichloro-1-fluoro-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

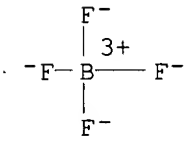
CM 1

CRN 130433-67-9
CMF C5 H3 Cl2 F N



CM 2

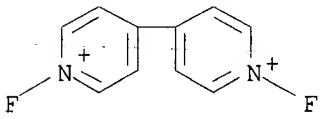
CRN 14874-70-5
CMF B F4
CCI CCS



RN 178439-28-6 HCA
CN 4,4'-Bipyridinium, 1,1'-difluoro-, bis[tetrafluoroborate(1-)] (9CI) (CA INDEX NAME)

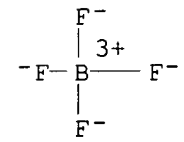
CM 1

CRN 178439-27-5
CMF C10 H8 F2 N2



CM 2

CRN 14874-70-5
CMF B F4
CCI CCS



L79 ANSWER 12 OF 27 HCA COPYRIGHT 2003 ACS
118:195132 Secondary lithium batteries. Idota, Yoshio (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 04349366 A2 19921203 Heisei, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1991-121281 19910527.
AB The batteries use an anion-doping cathode active mass and an anode-active mass contg. LipX (X is anion, p is the valence of X) insol. in the battery electrolyte solvent, an electrolyte contg. AqYr (A is cation, Y may be the

same as X or a different anion, **Li salt** of Y is insol. in the electrolyte solvent, and q is the product of the valence of Y and r divided by the valence of A).

IC ICM H01M010-40

CC **52-2** (Electrochemical, Radiational, and Thermal Energy Technology)

ST **lithium salt** battery anode

IT Batteries, secondary
(lithium, **compns**. of)

IT Anodes
(battery, **lithium**, **lithium salts** in manuf. of)

IT 7439-93-2P, Lithium, uses
RL: PREP (Preparation); USES (Uses)
(anodes, **lithium salts** in manuf. of, for secondary batteries)

IT 9035-69-2, Diacetyl cellulose 25233-30-1, Polyaniline 30604-81-0, Polypyrrole 146915-84-6 147104-72-1 147104-85-6 **147270-14-2** 147270-16-4 **147270-18-6**
RL: DEV (Device component use); USES (Uses)
(cathodes, for secondary batteries)

IT 429-41-4, Tetrabutylammonium fluoride 1112-67-0, Tetrabutylammonium chloride **1121-26-2** 1643-19-2, Tetrabutylammonium bromide 2304-30-5, Tetrabutylphosphonium chloride **2350-76-7**, N-Methylpyridinium bromide 2472-88-0, Tetrabutylammonium sulfate 4965-17-7, Tetrapentylammonium chloride 5574-97-0, Tetrabutylammonium phosphate **7680-73-1**, N-Methylpyridinium chloride **15618-68-5** 17351-62-1 **36880-52-1** **49722-63-6**, N-Methylpyridinium sulfate **147270-13-1**
RL: USES (Uses)
(electrolyte, for secondary lithium batteries)

IT 554-13-2, Lithium carbonate **7447-41-8**, **Lithium chloride**, uses **7550-35-8**, **Lithium bromide** 7782-42-5, Graphite, uses **7789-24-4**, **Lithium fluoride**, uses 10377-48-7, Lithium sulfate
RL: USES (Uses)
(in **lithium** anode manuf., for secondary batteries)

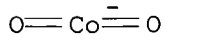
IT **147270-14-2** **147270-18-6**
RL: DEV (Device component use); USES (Uses)
(cathodes, for secondary batteries)

RN 147270-14-2 HCA

CN Pyridinium, 1,2-dimethyl-, dioxocobaltate(1-) (9CI) (CA INDEX NAME)

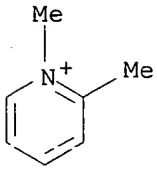
CM 1

CRN 107049-26-3
CMF Co O2
CCI CCS



CM 2

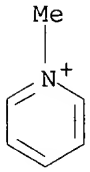
CRN 18241-33-3
CMF C7 H10 N



RN 147270-18-6 HCA
CN Pyridinium, 1-methyl-, pentaoxodivanadate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 694-56-4
CMF C6 H8 N



CM 2

CRN 12281-33-3
CMF O . V
CCI TIS

CM 3

CRN 17778-80-2
CMF O

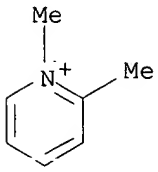
O

CM 4

CRN 7440-62-2
CMF V

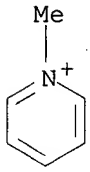
V

IT **1121-26-2 2350-76-7**, N-Methylpyridinium bromide
**7680-73-1**, N-Methylpyridinium chloride **15618-68-5**
**36880-52-1 49722-63-6**, N-Methylpyridinium sulfate
**147270-13-1**
RL: USES (Uses)
(electrolyte, for secondary lithium batteries)
RN 1121-26-2 HCA
CN Pyridinium, 1,2-dimethyl-, chloride (9CI) (CA INDEX NAME)



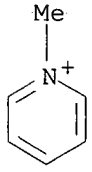
● $Cl^-$

RN 2350-76-7 HCA
CN Pyridinium, 1-methyl-, bromide (8CI, 9CI) (CA INDEX NAME)



● $Br^-$

RN 7680-73-1 HCA
CN Pyridinium, 1-methyl-, chloride (8CI, 9CI) (CA INDEX NAME)

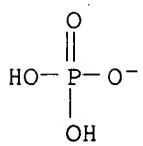


● $Cl^-$

RN 15618-68-5 HCA
CN Pyridinium, 1-methyl-, phosphate (1:1) (9CI) (CA INDEX NAME)

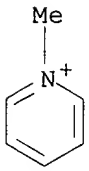
CM 1

CRN 14066-20-7
CMF H2 O4 P

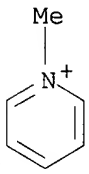


CM 2

CRN 694-56-4
CMF C6 H8 N



RN 36880-52-1 HCA
CN Pyridinium, 1-methyl-, fluoride (9CI) (CA INDEX NAME)

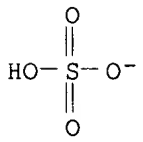


● $F^-$

RN 49722-63-6 HCA
CN Pyridinium, 1-methyl-, sulfate (1:1) (9CI) (CA INDEX NAME)

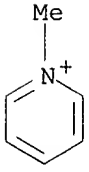
CM 1

CRN 14996-02-2
CMF H O4 S



CM 2

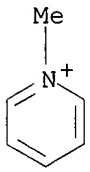
CRN 694-56-4
CMF C6 H8 N



RN 147270-13-1 HCA
CN Pyridinium, 1-methyl-, carbonate (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 694-56-4
CMF C6 H8 N



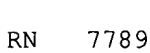
CM 2

CRN 71-52-3
CMF C H O3

IT **7447-41-8, Lithium chloride**, uses
**7550-35-8, Lithium bromide 7789-24-4**
**, Lithium fluoride**, uses
RL: USES (Uses)
(in **lithium** anode manuf., for secondary batteries)
RN 7447-41-8 HCA
CN Lithium chloride (LiCl) (9CI) (CA INDEX NAME)



RN 7550-35-8 HCA
CN Lithium bromide (LiBr) (9CI) (CA INDEX NAME)



RN 7789-24-4 HCA
CN Lithium fluoride (LiF) (9CI) (CA INDEX NAME)



L79 ANSWER 13 OF 27 HCA COPYRIGHT 2003 ACS
116:197686 Polyphosphazenes and their uses. Nakanaga, Takefumi; Inubushi, Akiyoshi; Tada, Yuji (Otsuka Chemical Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 03220237 A2 19910927 Heisei, 10 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-15828 19900125.
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The polyphosphazenes are {[N:P(Z)2].[(M.Yb)Xa}l+m+n, where [N:P(Z)2] is a polymer or a **mixt.** of polymers contg. segments selected from I-VI; M is Group I, II, IIIB-VIIIB, lanthanide, and/or Nb cation; X is an anion; k .ltoreq. 15; h .ltoreq. 22.5; a = 0.001-10; b is the no. of solvent Y mols. coordinated to M; 3 .ltoreq. l + m + n .ltoreq. 2000 with l, m, n being integers. The polyphosphazenes are used as electrolytes in batteries.

IC ICM C08G079-02
ICS C08L085-02; H01M010-40

CC **52-2** (Electrochemical, Radiational; and Thermal Energy Technology)
Section cross-reference(s): 38

IT Battery electrolytes
(polyphosphazene-salt **mixt.**, structures and **compns.** of)

IT **1194-27-0** 2567-83-1 2923-17-3 **7447-41-8**, **Lithium chloride** (**LiCl**), uses 7601-89-0 7783-93-9 7791-03-9 10034-81-8 13770-18-8 **14283-07-9** **21324-40-3** **33454-82-9** **140707-37-5**
RL: USES (Uses)
(electrolytes contg. polyphosphazenes and, for batteries)

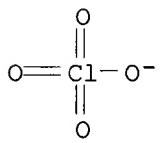
IT 7439-93-2D, Lithium, polyphosphazene complexes 7439-95-4D, Magnesium, polyphosphazene complexes 7440-22-4D, Silver, polyphosphazene complexes 7440-23-5D, Sodium, polyphosphazene complexes 7440-50-8D, Copper, polyphosphazene complexes
RL: USES (Uses)
(electrolytes, structures and **compns.** of, for batteries)

IT **1194-27-0** **7447-41-8**, **Lithium chloride** (**LiCl**), uses **14283-07-9** **21324-40-3** **33454-82-9** **140707-37-5**
RL: USES (Uses)
(electrolytes contg. polyphosphazenes and, for batteries)

RN 1194-27-0 HCA
CN Pyridinium, 1-methyl-, perchlorate (8CI, 9CI) (CA INDEX NAME)

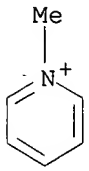
CM 1

CRN 14797-73-0
CMF Cl O4



CM 2

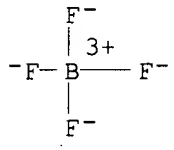
CRN 694-56-4
CMF C6 H8 N



RN 7447-41-8 HCA
CN Lithium chloride (LiCl) (9CI) (CA INDEX NAME)

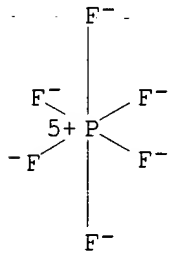
Cl—Li

RN 14283-07-9 HCA
CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



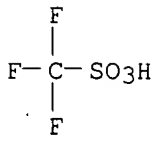
● $Li^+$

RN 21324-40-3 HCA
CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)

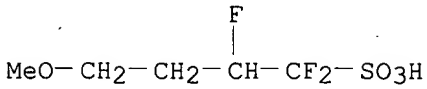


● $Li^+$

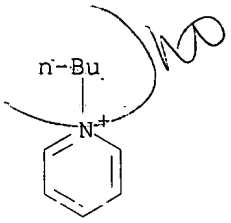
RN 33454-82-9 HCA
CN Methanesulfonic acid, trifluoro-, lithium salt (8CI, 9CI) (CA INDEX NAME)



RN 140707-37-5 HCA
CN 1-Butanesulfonic acid, 1,1,2-trifluoro-4-methoxy-, lithium salt (9CI) (CA INDEX NAME)



L79 ANSWER 14 OF 27 HCA COPYRIGHT 2003 ACS
115:283648 Secondary batteries with molten-salt electrolytes. Takami, Norio; Oosaki, Takahisa (Toshiba Corp., Japan). Jpn. Kokai Tokkyo Koho JP 03225775 A2 19911004 Heisei, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-153952 19900614. PRIORITY: JP 1989-316376 19891207.
AB The batteries contain a light metal anode, a cathode that can participate in reversible electrochem. reaction with Li ions, Al complexes or halide, and an electrolyte of **Li salts** in molten salt **mixt**. contg. Al halides, 1-butylpyridinium halide, 1-methyl-3-ethylimidazolium halide, and/or 1,2-dimethyl-3-propylimidazolium halide. Carbonaceous materials that can reversibly intercalate Li ions can be conveniently used as cathode. The battery electrolytes are nonflammable, and provide long cycle life and safety.
IC ICM H01M010-40
CC **52-2** (Electrochemical, Radiational, and Thermal Energy Technology)
ST **lithium** battery molten **salt** electrolyte; safety lithium battery molten electrolyte
IT Batteries, secondary
(**lithium**, with molten **salt** electrolyte)
IT **1124-64-7**, 1-Butylpyridinium chloride 65039-09-0, 1-Methyl-3-ethylimidazolium chloride 98892-74-1, 1,2-Dimethyl-3-propylimidazolium chloride
RL: USES (Uses)
(molten salt electrolytes contg. aluminum halides and **lithium salts** and, for secondary batteries)
IT **1124-64-7**, 1-Butylpyridinium chloride
RL: USES (Uses)
(molten salt electrolytes contg. aluminum halides and **lithium salts** and, for secondary batteries)
RN 1124-64-7 HCA
CN Pyridinium, 1-butyl-, chloride (8CI, 9CI) (CA INDEX NAME)



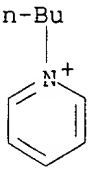

● $Cl^-$

L79 ANSWER 15 OF 27 HCA COPYRIGHT 2003 ACS
114:250738 Electrolytes for secondary batteries. Iwahara, Kazuyoshi; Okamura, Myoshi (Nippon Chemical Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 03034270 A2 19910214 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1989-166599 19890630.
GI For diagram(s), see printed CA Issue.
AB The electrolytes consist of mixed molten salts contg. 20-80 mol% imidazolium halides I (R1-5 = H, C1-6 alkyl, alkenyl, alkynyl, cycloalkyl, aryl; X = Cl, Br, I) and metal halides MXn (M = K, Ca, Li, Al, Mg, Zn, Fe; n = 1-3). The electrolytes may consist also of 20-80 mol% of a **mixt.** of I and alkylpyridinium halide (C1-5 alkyls, halogens are Cl, Br, or I), and MXn. The use of these electrolytes provides high battery performance without dendrite formation. Thus, a battery using a molten salt electrolyte contg. 50 mol% **LiCl** and 50 mol% 1-methyl-3-ethylimidazolium **bromide** and a **Li**-Al anode was cycled at 1.2 A/dm2. The Li formed on the anode in charging was compact and lustrous, without dendrite formation.
IC ICM H01M010-40
CC **52-2** (Electrochemical, Radiational, and Thermal Energy Technology)
IT 7446-70-0, Aluminum chloride, uses and miscellaneous **7447-41-8**, **Lithium chloride**, uses and miscellaneous 7646-85-7, Zinc chloride, uses and miscellaneous 7699-45-8, Zinc bromide 7705-08-0, Iron chloride (FeCl3), uses and miscellaneous 7727-15-3, Aluminum bromide
RL: USES (Uses)
(electrolytes contg. imidazolium halide and, for secondary batteries)
IT **874-80-6**, Butylpyridinium bromide **1124-64-7**, Butylpyridinium chloride 65039-08-9, 1-Methyl-3-ethylimidazolium bromide 79917-90-1 134142-73-7
RL: USES (Uses)
(electrolytes contg. metal halides and, for secondary batteries)
IT **7447-41-8**, **Lithium chloride**, uses and miscellaneous
RL: USES (Uses)
(electrolytes contg. imidazolium halide and, for secondary batteries)
RN 7447-41-8 HCA
CN Lithium chloride (LiCl) (9CI) (CA INDEX NAME)

Cl—Li

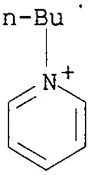
IT **874-80-6**, Butylpyridinium bromide **1124-64-7**, Butylpyridinium chloride
RL: USES (Uses)

(electrolytes contg. metal halides and, for secondary batteries)
RN 874-80-6 HCA
CN Pyridinium, 1-butyl-, bromide (8CI, 9CI) (CA INDEX NAME)



● $Br^-$

RN 1124-64-7 HCA
CN Pyridinium, 1-butyl-, chloride (8CI, 9CI) (CA INDEX NAME)



● $Cl^-$

L79 ANSWER 16 OF 27 HCA COPYRIGHT 2003 ACS
112:238087 Application of ambient temperature solid electrolytes to miniature batteries. Sotomura, T.; Kondo, S.; Iwaki, T. (Cent. Res. Lab., Matsushita Electr. Ind. Co., Ltd., Moriguchi, 570, Japan). Progress in Batteries & Solar Cells, 8, 163-9 (English) 1989. CODEN: PBASDR. ISSN: 0198-7259.
AB A new paper form solid electrolyte (an inorg./org. **composite** material of Rb4Cu16I6Cl14 and styrene-butadiene-ethylene-styrene copolymer rubber) with an ionic cond. of 3 .times. 10-3 S/cm at 25.degree. is described. A Li/I primary battery using LiI-based solid electrolyte, a Cu/CuxTiS2 secondary battery using Rb4Cu16I6Cl14 electrolyte, and the decompn. of the solid electrolyte are also described. The paper form electrolyte is flexible and more resistant to humidity than the raw solid electrolyte polymers. A solid state secondary battery with a 0.55 V was fabricated by press-molding a Rb4Cu16I6Cl14-CuxTiS2 cathode, Rb4Cu16I6Cl14-Cu-Cu2S anode, and Rb4Cu16I6Cl14 electrolyte; the battery completed >2000 cycles, for x .ltoreq.0.17. Anode polarization curves of vacuum evapd. Rb4Cu16I6Cl14 on Au, ITO, Si, and Cu are given; the decompn. potential of the electrolyte varied depending on the electrode material.
CC **52-2** (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 39
ST battery electrolyte rubidium copper chloride iodide; rubber synthetic **composite** electrolyte; styrene butadiene ethylene copolymer electrolyte
IT Rubber, synthetic

RL: USES (Uses)
(butadiene-ethylene-styrene, block, rubidium copper chloride iodide **composite** with, electrolytes, for miniature batteries)

IT Electric conductivity and conduction
(ionic, of rubidium copper iodide chloride/butadiene-ethylene-styrene rubber **composite** paper-form electrolyte)

IT Batteries, secondary
(solid-electrolyte, rubidium copper iodide chloride/butadiene-ethylene-styrene rubber **composite** electrolyte for, paper-form, properties of)

IT **874-81-7**
RL: USES (Uses)
(cathodes contg., battery with lithium iodide solid electrolyte and lithium anode and)

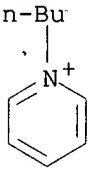
IT **10377-51-2**, Lithium iodide
RL: USES (Uses)
(electrolytes, battery with lithium anode and butylpyridinium iodide-silica gel cathode and)

IT 110900-80-6
RL: USES (Uses)
(rubidium copper chloride iodide **composite** with, electrolytes, for miniature batteries)

IT 110620-67-2, Copper rubidium chloride iodide (Cu4RbCl3.5I1.5)
RL: USES (Uses)
(styrene-butadiene-ethylene rubber **composite** with, electrolytes, for miniature batteries)

IT **874-81-7**
RL: USES (Uses)
(cathodes contg., battery with lithium iodide solid electrolyte and lithium anode and)

RN 874-81-7 HCA
CN Pyridinium, 1-butyl-, iodide (8CI, 9CI) (CA INDEX NAME)




● $I^-$

IT **10377-51-2**, Lithium iodide
RL: USES (Uses)
(electrolytes, battery with lithium anode and butylpyridinium iodide-silica gel cathode and)

RN 10377-51-2 HCA
CN Lithium iodide (LiI) (9CI) (CA INDEX NAME)

I—Li

L79 ANSWER 17 OF 27 HCA COPYRIGHT 2003 ACS
112:182937 Secondary aluminum batteries. Akyama, Tomoyuki; Sudo, Hajime; Takahashi, Kenichi (Tosoh Corp., Japan). Jpn. Kokai Tokkyo Koho JP

02005369 A2 19900110 Heisei, 4 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1988-155000 19880624.

AB The batteries use electrolytes liq. at .apprx.25.degree. and contg. Al halide, alkylpyridinium halides, and metal halides and cathodes of conductive polymers. Batteries have a high output, high capacity, and a long cycle life. Thus, an electrolyte of a 1:2 (mol) **mixt.** of butylpyridinium chloride and AlCl3 contg. 20 mol% **LiCl** was used in a battery having an anode of Al polished with diamond paste and electropolished in 25:38:40 water-EtOH-H3PO4, and a cathode of electropolymd. polyaniline. The battery showed a higher capacity than a ref. battery with electrolyte not contg. **LiCl**.

IC ICM H01M010-36

CC **52-2** (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

IT 7447-40-7, Potassium chloride, uses and miscellaneous **7447-41-8**, **Lithium chloride**, uses and miscellaneous 7786-30-3, Magnesium chloride, uses and miscellaneous
RL: USES (Uses)
(electrolytes contg. aluminum chloride and alkylpyridinium halides and, for secondary aluminum batteries)

IT **1124-64-7**, Butylpyridinium chloride
RL: USES (Uses)
(electrolytes contg. aluminum chloride and metal halides and, for secondary aluminum batteries)

IT **7447-41-8**, **Lithium chloride**, uses and miscellaneous
RL: USES (Uses)
(electrolytes contg. aluminum chloride and alkylpyridinium halides and, for secondary aluminum batteries)

RN 7447-41-8 HCA

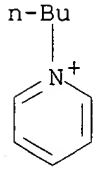
CN Lithium chloride (LiCl) (9CI) (CA INDEX NAME)

Cl— Li

IT **1124-64-7**, Butylpyridinium chloride
RL: USES (Uses)
(electrolytes contg. aluminum chloride and metal halides and, for secondary aluminum batteries)

RN 1124-64-7 HCA

CN Pyridinium, 1-butyl-, chloride (8CI, 9CI) (CA INDEX NAME)




● Cl⁻

L79 ANSWER 18 OF 27 HCA COPYRIGHT 2003 ACS

112:182904 High-rate and high energy-density battery with acidic electrolyte containing cation component, Lewis acid and nitrile. Donahue, Francis M.;

Simonsen, Leif R.; Moy, Russell L. (University of Michigan, USA). U.S. US 4882244 A 19891121, 7 pp. (English). CODEN: USXXAM. APPLICATION: US 1987-33208 19870402.

AB The battery uses the title electrolyte, where the cation component is **LiCl**, NaCl, KCl, or an org. cation, e.g, a 1,3-C1-6 dialkylimidazolium cation or its halide deriv., an N-C1-6 alkylpyridinium cation or its alkyl deriv., or a C1-6 tetraalkylammonium cation or its halide deriv., the Lewis acid is AlCl3, AlBr3, AlI3, MgCl2, and/or CaCl2, and the nitrile is an aliph. or unsatd. C1-6 org. **compd.** substituted by .gtoreq.1 CN group such as MeCN, EtCN, PrCN, and/or PhCN, for the high-rate electrolysis of the battery anode of Al, Zn, Mg, Ca, Na, K, Ga, Sb, Pb, or their alloy. A working electrolyte was prepd. by adding 54 vol.% MeCN to a 58:42 (wt.) AlCl3-1-methyl-3-ethylimidazolinium chloride.

IC ICM H01M006-14
ICS H01M006-16

NCL 429194000

CC **52-2** (Electrochemical, Radiational, and Thermal Energy Technology)

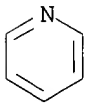
IT 75-05-8, Acetonitrile, uses and miscellaneous 100-47-0, Benzonitrile, uses and miscellaneous 107-12-0, Propionitrile 109-74-0, Butyronitrile 7446-70-0, Aluminum chloride, uses and miscellaneous 7447-40-7, Potassium chloride, uses and miscellaneous **7447-41-8, Lithium chloride**, uses and miscellaneous 7647-14-5, Sodium chloride, uses and miscellaneous 7727-15-3, Aluminum bromide 7784-23-8, Aluminum iodide 7786-30-3, Magnesium chloride, uses and miscellaneous 10043-52-4, Calcium chloride, uses and miscellaneous **16969-45-2D**, Pyridinium cation, alkyl derivs. 17009-90-4D, dialkyl derivs. 65039-09-0
RL: USES (Uses)
(electrolytes contg., for high energy-d. and high-rate batteries)

IT **7447-41-8, Lithium chloride**, uses and miscellaneous **16969-45-2D**, Pyridinium cation, alkyl derivs.
RL: USES (Uses)
(electrolytes contg., for high energy-d. and high-rate batteries)

RN 7447-41-8 HCA
CN Lithium chloride (LiCl) (9CI) (CA INDEX NAME)

Cl—Li

RN 16969-45-2 HCA
CN Pyridine, conjugate acid (8CI, 9CI) (CA INDEX NAME)




● $H^+$

L79 ANSWER 19 OF 27 HCA COPYRIGHT 2003 ACS
111:61048 Secondary nonaqueous-electrolyte batteries. Koura, Nobuyuki; Takami, Norio (Japan). Jpn. Kokai Tokkyo Koho JP 01095469 A2 19890413 Heisei, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1987-250794

19871006.

AB **Mixts**. contg. 20-80 mol% C1-5 alkylpyridinium halides (Cl,Br,I) and MXn (M = K, Ca, Li, Al, Ca, Mg, Zn, Fe; X = Cl, Br, I; n = 1-3) are used as electrolytes in the title batteries. These electrolytes can be used for batteries having Li, Ca, Mg, Zn, or Fe anodes, and can be used without or with an org. solvent. Thus, when cycled between 2.6 and 2.1 V at 0.3 A/dm2, a Li-Al/FeS2 battery using a 50:50 (mol) butylpyridinium chloride-**LiCl** electrolyte had a current rfficiency of .apprx.100%.

IC ICM H01M010-39
ICS H01M010-40

CC **52-2** (Electrochemical, Radiational, and Thermal Energy Technology)

ST battery electrolyte alkylpyridinium halide; alkylpyridinium halide **lithium chloride** electrolyte

IT 7446-70-0, Aluminum chloride (AlCl3), uses and miscellaneous **7447-41-8, Lithium chloride**, uses and miscellaneous 7646-85-7, Zinc chloride, uses and miscellaneous 7705-08-0, Iron chloride (FeCl3), uses and miscellaneous 10031-26-2, Iron bromide (FeBr3)
RL: USES (Uses)
(electrolytes contg. alkylpyridinium halide and, for secondary batteries)

IT **1124-64-7**, Butylpyridinium chloride
RL: USES (Uses)
(electrolytes contg. metal halides and, for secondary batteries)

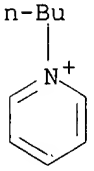
IT **7447-41-8, Lithium chloride**, uses and miscellaneous
RL: USES (Uses)
(electrolytes contg. alkylpyridinium halide and, for secondary batteries)

RN 7447-41-8 HCA
CN Lithium chloride (LiCl) (9CI) (CA INDEX NAME)

Cl—Li

IT **1124-64-7**, Butylpyridinium chloride
RL: USES (Uses)
(electrolytes contg. metal halides and, for secondary batteries)

RN 1124-64-7 HCA
CN Pyridinium, 1-butyl-, chloride (8CI, 9CI) (CA INDEX NAME)




● Cl⁻

L79 ANSWER 22 OF 27 HCA COPYRIGHT 2003 ACS
106:179815 Battery. Lausten, Mads Aage; Kummel, Karen (Hellesens A/S, Den.). Brit. UK Pat. Appl. GB 2176928 A1 19870107, 6 pp. (English). CODEN:

BAXXDU. APPLICATION: GB 1986-12757 19860527. PRIORITY: DK 1985-2732 19850617.

AB A nonaq.-electrolyte battery of SOCl2 or SO2Cl2 and Group 1 or 2 (IA or IIA) metal anode has a decreased delayed action (DA) when the electrolyte contains a SO3 **compd.** such as stabilized SO3, pyridine S trioxide (C5H5NSO3), or LiSO3X, where X = F-, Cl-, or Br-. The electrolyte contains also 0.02-0.30M LiNbCl6 or LiTaCl6. Li/1.8M LiAlCl4-SOCl2 batteries with C current collector contg. LiSO3Cl 0.16, C5H5NSO3 0.11, or C5H5NSO3 0.11 + LiNbCl6 0.09M in the catholyte showed decreased DA and capacities comparable or higher than a control battery without additives in the catholyte after 2-wk storage at 45 or 70.degree..

IC ICM H01M006-14

CC **52-2** (Electrochemical, Radiational, and Thermal Energy Technology)

ST **lithium** thionyl **chloride** battery; battery lithium delayed action; sulfur oxide lithium battery; pyridine sulfur oxide lithium battery; niobium **lithium chloride** battery; chlorosulfonate **lithium** thionyl **chloride** battery; chloroniobate **lithium** thionyl **chloride** battery

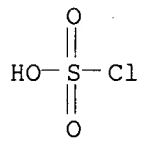
IT Batteries, primary
(**lithium**-thionyl **chloride**, with nonaq. electrolyte contg. stabilized sulfur trioxide **compd.** for decreased delayed action and high capacity)

IT 7446-11-9, Sulfur trioxide, uses and miscellaneous **19744-12-8**, **Lithium** chlorosulfonate **26412-87-3**, Pyridine sulfur trioxide 90317-33-2, Lithium chloroniobate (LiNbCl6)
RL: USES (Uses)
(thionyl **chloride** contg., for decreased delayed action and high capacity lithium batteries)

IT **19744-12-8**, **Lithium** chlorosulfonate **26412-87-3**, Pyridine sulfur trioxide
RL: USES (Uses)
(thionyl **chloride** contg., for decreased delayed action and high capacity lithium batteries)

RN 19744-12-8 HCA

CN Chlorosulfuric acid, lithium salt (8CI, 9CI) (CA INDEX NAME)



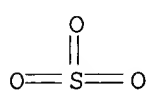
● Li

RN 26412-87-3 HCA

CN Sulfur trioxide, compd. with pyridine (1:1) (9CI) (CA INDEX NAME)

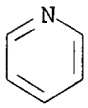
CM 1

CRN 7446-11-9
CMF O3 S



CM 2

CRN 110-86-1
CMF C5 H5 N



L79 ANSWER 24 OF 27 HCA COPYRIGHT 2003 ACS
100:212913 Prospects for alkylpyridinium aluminum chloride melts. Desjardins, C. D.; Salter, R. S.; Cadger, T. G.; Casey, E. J. (New Brunswick Res. Prod. Counc., Fredericton, NB, E3B 5H1, Can.). Proceedings - Electrochemical Society, 84-2(Molten Salts), 146-62 (English) 1984. CODEN: PESODO. ISSN: 0161-6374.

AB N-Butylpyridinium chloride [**1124-64-7**]:AlCl3 melt **mixts**. were synthesized under rigorously pure and dry conditions. The phase diagram and preliminary cond. data are presented. Purified AlCl3 was chloride deficient. In acidic melts (e.g. mole fraction of AlCl3 >0.5), Li, Mg, In, and Al are active; Pt, Mo, C, and Zr are passive; and Cu, Ag, and Ti are transitional. Less overall activity occurs in neutral (0.50 mol fraction AlCl3) and basic (<0.5) melts. Preliminary electrochem. studies on Li, Mo, and Cu in the 0.67 mol fraction melt at various temps. permit some understanding of the different mechanisms operable. Suggestions for further fundamental investigations and prospects of these melts as battery electrolytes are discussed.

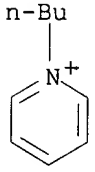
CC **52-2** (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 68, 72, 76

ST aluminum butylpyridinium chloride battery electrolyte; **lithium** electrode butylpyridinium **chloride** electrolyte; molybdenum butylpyridinium chloride electrolyte; copper butylpyridinium chloride electrolyte; metal electrode butylpyridinium chloride electrolyte

IT **1124-64-7**
RL: USES (Uses)
(battery electrolytes from aluminum chloride-, prospects for)

IT **1124-64-7**
RL: USES (Uses)
(battery electrolytes from aluminum chloride-, prospects for)

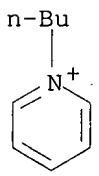
RN 1124-64-7 HCA
CN Pyridinium, 1-butyl-, chloride (8CI, 9CI) (CA INDEX NAME)



L79 ANSWER 25 OF 27 HCA COPYRIGHT 2003 ACS
99:161491 Solid-state batteries. Sekido, Satoshi; Sotomura, Tadashi; Ninomiya, Yoshito (Matsushita Electric Industrial Co., Ltd. , Japan). Eur. Pat. Appl. EP 77169 A1 19830420, 21 pp. DESIGNATED STATES: R: DE, FR, GB. (English). CODEN: EPXXDW. APPLICATION: EP 1982-305293 19821005. PRIORITY: JP 1981-161565 19811008; JP 1982-84218 19820518.

AB A solid-electrolyte battery is composed of a molded cathode comprising a solid electrolyte and TiX2, Nb2X5, WX3, or MoX3 (X = O or S); a molded Li+-or Cu+-conductive solid electrolyte; and a reversible Li or Cu anode. Thus, a cathode active substance was prepd. by press molding 3 mmol TiS2, Nb2S5, WS3, TiO2, Nb2O5, or WO3 into a disk of 18 mm in diam. at 300 MPa. The disk was coated on the side counter to the anode with butylpyridinium pentaiodide complex. The coated side was pressure welded to a Li-Al alloy sheet. The performance of the battery and that of a conventional battery were compared. The conventional battery showed a large voltage change with the discharge, the change being in direct proportion to the amt. of discharged electricity and the discharge c.d. The battery of the invention showed better flatness of the voltage change. The battery withstands .apprx.300 cycles of charge and discharge.

IC H01M010-36; H01M004-58
CC **52-2** (Electrochemical, Radiational, and Thermal Energy Technology)
IT **874-81-7D, compd.** with lithium **10377-51-2D, compd.** with butylpyridinium iodide 73379-32-5
RL: USES (Uses)
(battery electrolyte, secondary solid-state)
IT **874-81-7D, compd.** with lithium **10377-51-2D, compd.** with butylpyridinium iodide
RL: USES (Uses)
(battery electrolyte, secondary solid-state)
RN 874-81-7 HCA
CN Pyridinium, 1-butyl-, iodide (8CI, 9CI) (CA INDEX NAME)



● I⁻

RN 10377-51-2 HCA
CN Lithium iodide (LiI) (9CI) (CA INDEX NAME)

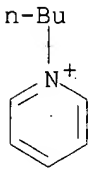
I—Li

L79 ANSWER 26 OF 27 HCA COPYRIGHT 2003 ACS
97:219668 **Lithium**-thionyl **chloride** battery. Saathoff, Deidrich J.; Venkatasetty, Hanumanthiya V. (Honeywell Inc., USA). U.S. US 4355086 A 19821019, 4 pp. (English). CODEN: USXXAM. APPLICATION: US 1981-307480 19811001.

AB The discharge rate and internal cond. of a Li battery contg. LiAlCl4-SOCl2

electrolyte are improved by addn. of AlCl3-butylpyridinium chloride **mixt.**

IC H01M004-36
NCL 429105000
CC **52-2** (Electrochemical, Radiational, and Thermal Energy Technology)
ST **lithium** thionyl **chloride** battery electrolyte; aluminum chloride battery electrolyte; butylpyridinium chloride battery electrolyte
IT Batteries, secondary
(**lithium**-thionyl **chloride**, with electrolyte contg. aluminum chloride and butylpyridinium chloride additive, high discharge-rate)
IT Electric conductivity and conduction
(of aluminum **chloride**-butylpyridinium **chloride**-**lithium** aluminum **chloride** in thionyl chloride, for battery electrolyte)
IT **1124-64-7**
RL: USES (Uses)
(battery electrolyte contg. aluminum **chloride** and, **lithium**-thionyl **chloride**)
IT 7446-70-0, uses and miscellaneous
RL: USES (Uses)
(battery electrolyte contg. butylpyridinium **chloride** and, **lithium**-thionyl **chloride**)
IT **1124-64-7**
RL: USES (Uses)
(battery electrolyte contg. aluminum **chloride** and, **lithium**-thionyl **chloride**)
RN 1124-64-7 HCA
CN Pyridinium, 1-butyl-, chloride (8CI, 9CI) (CA INDEX NAME)




● $Cl^-$

L79 ANSWER 27 OF 27 HCA COPYRIGHT 2003 ACS.
96:112191 Reaction mechanisms in the lithium/lithium iodide/1-n-butylpyridinium polyiodide solid electrolyte cell. Sotomura, Tadashi; Nakai, Muneaki; Sekido, Satoshi (Mater. Res. Lab., Matsushita Electr. Ind. Co., Ltd., Osaka, 571, Japan). Solid State Ionics, 3-4, 263-6 (English) 1981. CODEN: SSIOD3. ISSN: 0167-2738.
AB A Li/(BPIa + SiO2 gel) battery (in BPIa = 1-n-butylpyridinium polyiodide charge-transfer complex) was investigated by measuring internal cell resistance (Ri) and the self-discharge capacities (Qs) estd. from the chem. anal. of the cathode **mixts.** The activation energy as detd. from the temp. dependence of Ri is for ionic conduction in the solid electrolytes. It is 12 kcal/mol and maintains a nearly const. value during the storage period. However, the value was reduced to 7-8 kcal/mol after the initiation of cell discharge. The value of Qs followed the parabolic law after the initial storage period up to .apprx.50 d at

20.degree., i.e. Qs (mA h/cm2 of Li anode) = 4.3 + 0.034 i1/2 (t in hours). The losses of I during storage are decreased by a preliminary discharge of > 2 mA-h/cm2, immediately after constructing the cell.

CC 72-3 (Electrochemistry)
Section cross-reference(s): **52**

IT **81003-74-9 81003-76-1 81003-78-3**
**81003-80-7**
RL: PRP (Properties)
(cathode, in solid electrolyte battery with lithium, reaction mechanism of)

IT **10377-51-2P**
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in lithium-butylpyridinium polyiodide solid electrolyte battery)

IT **81003-74-9 81003-76-1 81003-78-3**
**81003-80-7**
RL: PRP (Properties)
(cathode, in solid electrolyte battery with lithium, reaction mechanism of)

RN 81003-74-9 HCA
CN Pyridinium, 1-butyl-, (heptacosaiodide) (9CI) (CA INDEX NAME)

CM 1

CRN 81003-73-8
CMF I27

PAGE 1-A

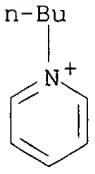
I—I—I—I—I—I—I—I—I—I—I—I—I—I—I⁻—I—I—I—I—I—I—I—I—I—I—

PAGE 1-B

—I—I—I

CM 2

CRN 45806-95-9
CMF C9 H14 N




RN 81003-76-1 HCA
CN Pyridinium, 1-butyl-, (heneicosaiodide) (9CI) (CA INDEX NAME)

CM 1

CRN 81003-75-0
CMF I21

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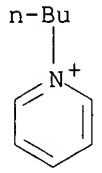
CM 2

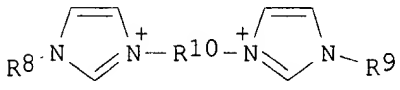
CRN 45806-95-9
CMF C9 H14 N



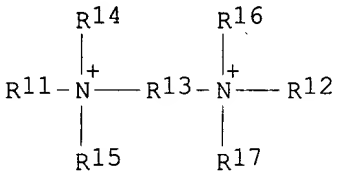
IT **10377-51-2P**
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in lithium-butylpyridinium polyiodide solid electrolyte battery)
RN 10377-51-2 HCA
CN Lithium iodide (LiI) (9CI) (CA INDEX NAME)

I— Li

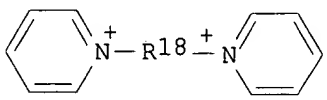
L79 ANSWER 1 OF 27 HCA COPYRIGHT 2003 ACS
133:298800 Carbonaceous materials and their manufacture, vanadium oxide derivatives, solid ion conductive electrochemical elements, and secondary nonaqueous electrolyte batteries. Watanabe, Kazuhiro; Nichogi, Katsuhiro; Nanai, Satonari; Miyamoto, Akihito (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000285921 A2 20001013, 16 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-155011 19990602. PRIORITY: JP 1998-163134 19980611; JP 1999-16754 19990126.
GI



I



II



III

AB The carbonaceous materials are heat treated hardened resin, and are prepd. by mixing the resin with an arom. compds. having 2-10 rings and hardening the **mixt**. The solid ion electrochem. elements contain cations selected from imidazole radical ion or its deriv., having aliph. C connected to the N atoms, quaternary ammonium ion, I (R8 and R9 =

substituents having aliph. C connected directly to N; R10 = aliph. C contg. group), II (R14-R17 = substituents having aliph. C connected directly to N; R11-R13 = C contg. groups which may also contain arom. groups), III (R18 = substituent contg. aliph. C), and IV (R21 and R22 = substituents having aliph. C connected directly to N) mixed with other cations, e.g., metal ions selected from alkali metals, alk. earth, Ag, Cu, and Zn. The batteries use the carbonaceous material for Li intercalating anodes, the conductive material as solid electrolyte, and V oxide derivs., AxV4-zMzO11 or AxByV4-zMzO11 (A and B and M are metals, x .ltoreq., y .ltoreq.4, and z .ltoreq.4) for cathodes.

IC ICM H01M004-58
ICS C01B031-02; H01M004-02; H01M010-40

CC **52-2** (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium battery **compn** component; carbonaceous material anode secondary lithium battery; quaternary ammonium **compd** electrolyte secondary lithium battery; vanadium oxide cathode secondary lithium battery

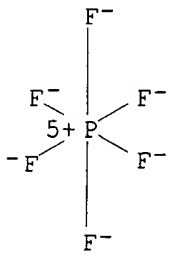
IT Battery electrolytes
(electrolyte solns. contg. quaternary ammonium salts and other **salts** for secondary **lithium** batteries)

IT 96-49-1, Ethylene carbonate 106-93-4D, 1,2-Dibromoethane, reaction products with 1-methylimidazole 108-32-7, Propylene carbonate 110-86-1D, Pyridine, reaction products with 1,2-dibromoethane, uses. 121-44-8D, Triethylamine, reaction products with 1,2-diiodoethane 121-44-8D, Triethylamine, reaction products with triethylamine 429-07-2, Tetraethylammonium hexafluorophosphate 616-47-7D, 1-Methylimidazole, reaction products with dibromo hydrocarbons 629-03-8D, 1.6-Dibromohexane, reaction products with 1-methylimidazole 13814-93-2, Calcium fluoroborate 13826-88-5, Zinc fluoroborate 16941-11-0, Ammonium hexafluorophosphate **21324-40-3**, Lithium hexafluorophosphate 26042-63-7, Silver hexafluorophosphate 37275-48-2D, Bipyridine, N,N'-dialkyl derivs. 61175-74-4, Triethylphenylammonium bromide 155371-19-0, 1-Ethyl-3-methylimidazolium hexafluorophosphate **301358-91-8**
RL: DEV (Device component use); USES (Uses)
(electrolyte solns. contg. quaternary ammonium salts and other **salts** for secondary **lithium** batteries)

IT **21324-40-3**, Lithium hexafluorophosphate **301358-91-8**
RL: DEV (Device component use); USES (Uses)
(electrolyte solns. contg. quaternary ammonium salts and other **salts** for secondary **lithium** batteries)

RN 21324-40-3 HCA

CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)

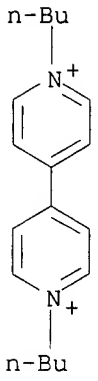



● $Li^+$

RN 301358-91-8 HCA
CN 4,4'-Bipyridinium, 1,1'-dibutyl-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

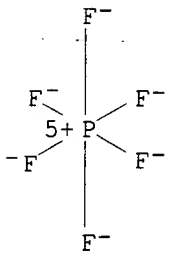
CM 1

CRN 47082-19-9
CMF C18 H26 N2

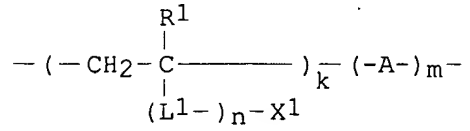


CM 2

CRN 16919-18-9
CMF F6 P
CCI CCS



L79 ANSWER 2 OF 27 HCA COPYRIGHT 2003 ACS
133:180343 Photoelectric converters and photoelectrochemical cells. Shirato, Kentaro (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000228234 A2 20000815, 32 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-29183 19990205.
GI



I

AB The converters have successively a conductive support, a layer of semiconductor particles contg. adsorbed pigment, a charge transfer layer, and a counter electrode; where the charge transfer layer contains a gel electrolyte comprising a reaction product of a OH and/or carboxyl group contg. polymer and a **compd.** having .gtoreq.2 isocyanate groups. The polymer is preferably I, where R1 = H or C1-4 alkyl group, L1 = bivalent connection group, n = 0 or 1, X1 = monovalent org group contg. OH and/or carboxyl group, A = repeating unit derived from ethylenic unsatd. **compd,** k = 0.5-80 wt.%, m = 20-99.5 wt.%.

IC ICM H01M014-00
ICS H01L031-04

CC **52-2** (Electrochemical, Radiational, and Thermal Energy Technology)

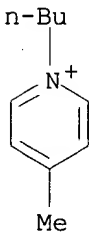
IT 75-05-8, Acetonitrile, uses 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 110-71-4, 1,2-Dimethoxyethane 311-28-4, Tetrabutylammonium iodide 4743-28-6 10123-62-3 **10377-51-2,** Lithium iodide 19836-78-3 **32353-64-3** 65039-05-6 178631-05-5 223659-97-0 **258273-67-5** 288627-75-8 288627-77-0 288627-79-2 288627-81-6 288627-82-7 288627-83-8 288627-84-9 288627-85-0 288627-86-1 288627-87-2 288627-88-3 288627-89-4 288627-90-7 288627-91-8 288627-92-9 288627-93-0 288627-94-1 289703-99-7
RL: DEV (Device component use); USES (Uses)
(gelled polymer electrolyte charge transfer layer in photoelectrochem. cells contg. pigment sensitized semiconductor)

IT **10377-51-2,** Lithium iodide **32353-64-3** **258273-67-5**
RL: DEV (Device component use); USES (Uses)
(gelled polymer electrolyte charge transfer layer in photoelectrochem. cells contg. pigment sensitized semiconductor)

RN 10377-51-2 HCA
CN Lithium iodide (LiI) (9CI) (CA INDEX NAME)

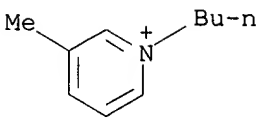
I—Li

RN 32353-64-3 HCA
CN Pyridinium, 1-butyl-4-methyl-, iodide (9CI) (CA INDEX NAME)




● $I^-$

RN 258273-67-5 HCA
CN Pyridinium, 1-butyl-3-methyl-, iodide (9CI) (CA INDEX NAME)





L79 ANSWER 5 OF 27 HCA COPYRIGHT 2003 ACS
131:90194 Photoelectric converters and photoelectrochemical cells thereof. Shirato, Kentaro; Yanagida, Shozo; Shirai, Hiroyoshi; Hanabusa, Kenji (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11185836 A2 19990709 Heisei, 39 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-363503 19971216.

AB The photoelec. converters have a conductive substrate, a layer of semiconductor particles contg. adsorbed dye on the substrate, a gel electrolyte, and a counter electrode; where the gel electrolyte contains an electrolyte and a gelling agent having mol. wt. .ltoreq.1000. The salts are selected from metal iodide, quaternary ammonium iodide, quaternary imidazolium iodide, quaternary pyridinium iodide, metal bromide, quaternary ammonium bromide, S compds., viologen dye, and hydroquinone-quinone.

IC ICM H01M014-00
ICS H01L031-04

CC **52-2** (Electrochemical, Radiational, and Thermal Energy Technology)

IT Electrolytes
Photoelectrochemical cells
(**compns**. of gel electrolytes for photoelectrochem. cells with dye adsorbed semiconductor electrodes)

IT 230308-00-6
RL: DEV (Device component use); USES (Uses)
(**compns**. of gel electrolytes for photoelectrochem. cells \with dye adsorbed semiconductor electrodes)

IT 75-05-8, Acetonitrile, uses 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 110-71-4 631-40-3 **10377-51-2**, Lithium iodide 13463-67-7, Titania, uses 19836-78-3, 3-Methyl-2-oxazolidinone 230308-02-8
RL: DEV (Device component use); USES (Uses)
(**compns**. of gel electrolytes for photoelectrochem. cells with dye adsorbed semiconductor electrodes)

IT 110067-66-8 141460-19-7 149005-03-8 **205817-35-2**
207347-46-4 219727-02-3 219727-09-0 223659-97-0 230307-77-4
230307-78-5 230307-79-6 230307-80-9 230307-81-0 230307-82-1
230307-83-2 230307-84-3 230307-85-4 230307-86-5 230307-87-6
230307-89-8 230308-15-3
RL: MOA (Modifier or additive use); USES (Uses)
(**compns**. of gel electrolytes for photoelectrochem. cells with dye adsorbed semiconductor electrodes)

IT **10377-51-2**, Lithium iodide
RL: DEV (Device component use); USES (Uses)
(**compns**. of gel electrolytes for photoelectrochem. cells with dye adsorbed semiconductor electrodes)

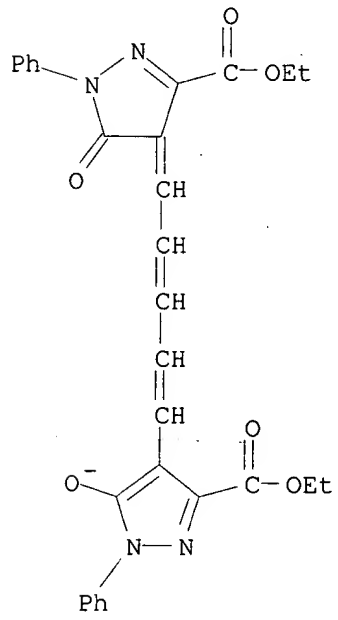
RN 10377-51-2 HCA
CN Lithium iodide (LiI) (9CI) (CA INDEX NAME)

I—Li

IT **205817-35-2**
RL: MOA (Modifier or additive use); USES (Uses)
(**compns.** of gel electrolytes for photoelectrochem. cells with dye adsorbed semiconductor electrodes)
RN 205817-35-2 HCA
CN Pyridinium, 1-methyl-, salt with ethyl 4-[5-[3-(ethoxycarbonyl)-5-hydroxy-1-phenyl-1H-pyrazol-4-yl]-2,4-pentadienylidene]-4,5-dihydro-5-oxo-1-phenyl-1H-pyrazole-3-carboxylate (1:1) (9CI) (CA INDEX NAME)

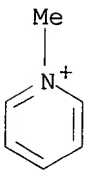
CM 1

CRN 205817-33-0
CMF C29 H25 N4 O6



CM 2

CRN 694-56-4
CMF C6 H8 N



L79 ANSWER 20 OF 27 HCA COPYRIGHT 2003 ACS
109:153094 Battery cathodes containing metal complexes. Kamatani, Naoaki; Tanno, Kazuo; Kumagai, Nobuko (Japan). Jpn. Kokai Tokkyo Koho JP 63114066

A2 19880518 Showa, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1986-170170 19860719.

AB Complexes of metals with org. compds. having coordination atom of N, O, or S are mixed with a carbonaceous material for use as battery cathodes. Thus, a 1:1 Ni(TPTZ)2(ClO4)2-graphite **mixt.** was pressed at 2000 kg/cm2 to obtain a 0.5-mm-thick pellet of 1.3-cm diam. and wrapped with C sheets on both sides to form a cathode. When discharged at 0.2 mA/cm2 and 25.degree., a Li battery using this cathode and a 1M **LiClO4** /propylene carbonate electrolyte had a capacity of 2060 A-h/kg complex and an energy d. of 3090 W-h/kg complex, vs. 370 A-h/kg TPTZ and 670 W-h/kg TPTZ for a battery using a TPTZ-graphite cathode.

IC ICM H01M004-60
ICS H01M004-02

CC **52-2** (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 78

IT 3682-35-7D, silver perchlorate complex 7440-22-4D, Silver, tripyridyltriazine-perchlorate complex 10380-28-6 13978-85-3 13978-88-6 14100-15-3 14219-34-2 14319-01-8 14495-13-7 14896-41-4 14976-96-6 15350-25-1 15613-10-2 15613-15-7 19319-39-2 21361-03-5 21748-35-6 **22233-35-8** **49727-15-3 49729-89-7 116868-56-5** **116868-58-7** 116886-56-7
RL: USES (Uses)
(cathodes, contg. graphite, for nonaq. lithium batteries)

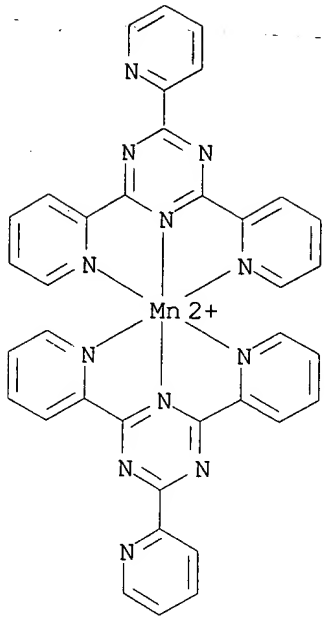
IT **22233-35-8 49727-15-3 49729-89-7** **116868-56-5 116868-58-7**
RL: USES (Uses)
(cathodes, contg. graphite, for nonaq. lithium batteries)

RN 22233-35-8 HCA

CN Cobalt(2+), bis(2,4,6-tri-2-pyridinyl-1,3,5-triazine-N1,N2,N6)-, (OC-6-1'2)-, diperchlorate (9CI) (CA INDEX NAME)

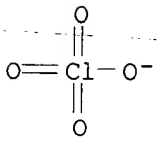
CM 1

CRN 31084-97-6
CMF C36 H24 Co N12
CCI CCS




CM 2

CRN 14797-73-0
CMF Cl O4



L79 ANSWER 21 OF 27 HCA COPYRIGHT 2003 ACS
109:95980 Secondary solid-state batteries with halogen-redox cathodes. Tonomura, Tadashi; Kanbara, Terutoshi; Kondo, Shigeo (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 63053864 A2 19880308 Showa, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1986-197525 19860822.

AB The title cathodes, reducing and oxidizing halogen in the solid Li, Cu and/or Ag halides electrolyte upon discharging and charging, have a halogen-absorbing org. **compd**. on the surface. Thus, a Au cathode collector deposited on a glass plate was dipped in an EtOH soln. of poly(4-vinylpyridine) and dried to form a cathode, followed by vacuum deposition of successive layers of RbCu4I1.5Cl3.5 solid electrolyte, Cu anode, and Au-Cr anode collector to obtain a battery having low self discharge and long lifetime.

IC ICM H01M010-36

CC **52-2** (Electrochemical, Radiational, and Thermal Energy Technology)

IT **874-81-7** 25014-15-7, 2-Vinylpyridine, homopolymer 25232-41-1, 4-Vinylpyridine, homopolymer 29855-24-1
RL: USES (Uses)
(cathodes, for batteries with solid electrolyte of lithium or copper or

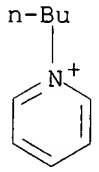
silver halide)

IT **10377-51-2**, Lithium iodide (LiI) 110620-67-2, Copper rubidium chloride iodide (Cu4RbCl3.5I1.5) 115866-44-9, Copper molybdenum iodide oxide (Cu5Mo1.5I2O6) 116098-49-8, Molybdenum silver iodide oxide (MoAg5I3O4)
RL: USES (Uses)
(solid electrolyte, for secondary batteries)

IT **874-81-7**
RL: USES (Uses)
(cathodes, for batteries with solid electrolyte of lithium or copper or silver halide)

RN 874-81-7 HCA

CN Pyridinium, 1-butyl-, iodide (8CI, 9CI) (CA INDEX NAME)



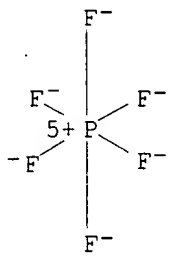
● $I^-$

IT **10377-51-2**, Lithium iodide (LiI)
RL: USES (Uses)
(solid electrolyte, for secondary batteries)

RN 10377-51-2 HCA

CN Lithium iodide (LiI) (9CI) (CA INDEX NAME)

L5 6 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI)
MF F6 P . Li
CI CCS, COM




● $Li^+$